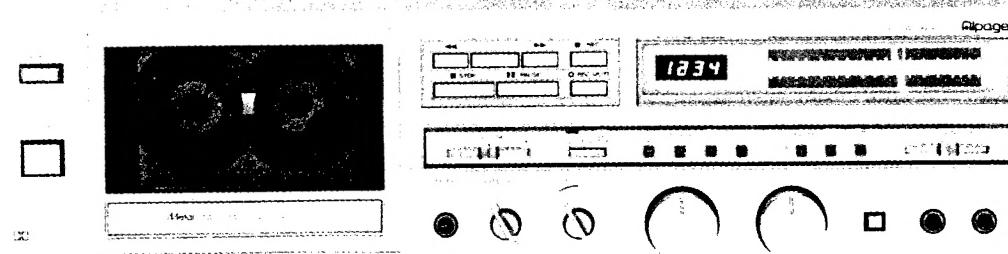


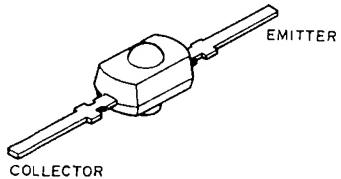
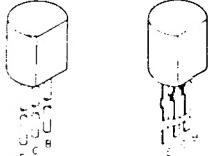
# SERVICE MANUAL **Alpage**

**STEREO  
CASSETTE  
DECK**

**AL60**



**ALPINE ELECTRONICS INC.**

TPS605: Q1	2SC1318NC-R or 2SC509: Q101, 401, 402, 551, 552, Q553, 603, 604, 605 2SA921: Q902	2SD880-Y: Q102, 103 2SC235-Y or 2SD880-Y: Q901
		

2SC945L-P or 2SC1815-GR or 2S1815-Y: Q201, 202, 301 to 320, 403, Q404, 405, 406, 501, 502, Q601, 602, 606, 903 2SC1815-Y: Q651	2SC1890E,F or 2SC1980-T: Q203 to 206, 555, 556	22SA733(P): Q904, 905, 906 2SC900E or 2SC732BL: Q207 to 210
		

## ALPINE ELECTRONICS INC.

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## Specifications

Tape Speed (MTT-111)	4.76 cm/sec. $\pm$ 1.5%
Wow & Flutter (JIS WTD) (MTT-111)	0.07%
FF/REW Time (C-60)	100 sec.
Rec/Play Head	Sen Dust Core
Erase Head	Double Gaps Ferrite Core
Input Sensitivity/Impedance	Mic: 0.3mV/600 ohm Line: 100mV/50K ohm
Signal to Noise Ratio	55 dB
Distortion	2%
Frequency Response	31.5 Hz to 14 KHz
Stereo Separation	35 dB
Crosstalk	60 dB
Input Power	25W
Input Voltage	110/127/220/240V AC 50/60 Hz (Multi voltage Model) 120V AC 60 Hz (Single voltage Model)
Output Level/Impedance	Line: 500mV/100K ohm Headphone: 65mV/8 ohm
Take Up Torque	35 ~ 60 gcm
Semi-conductors	18 IC's, 60 Transistors, 48 Diodes, 3 Zener Diodes, 1 Bridge Diode
Dimensions (W x H x D)	435 x 116 x 254mm
Weight	5.3 Kg

## Parts Location and Disassembly Instructions

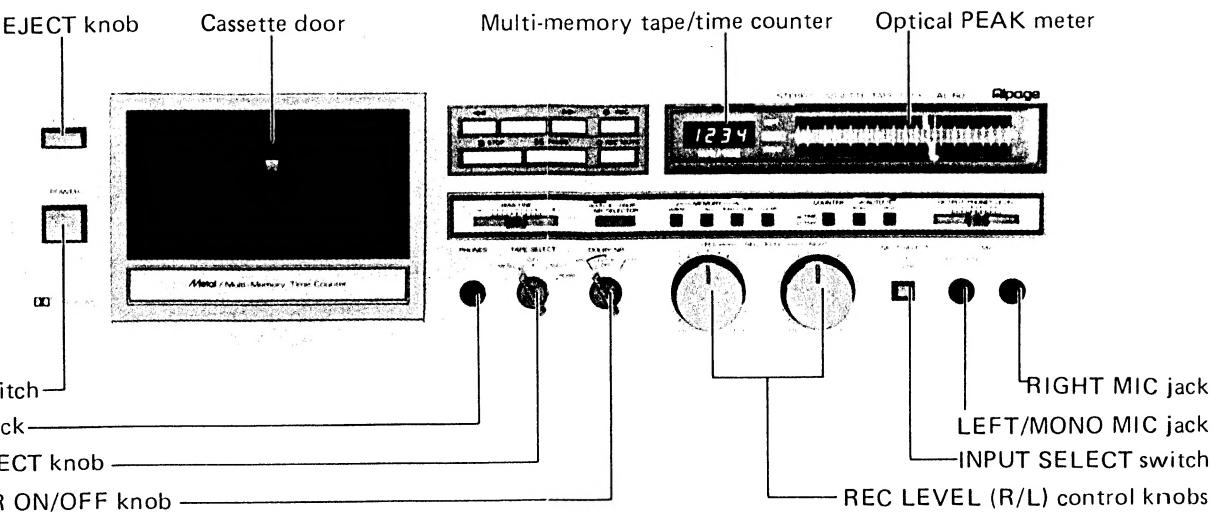


Figure 1

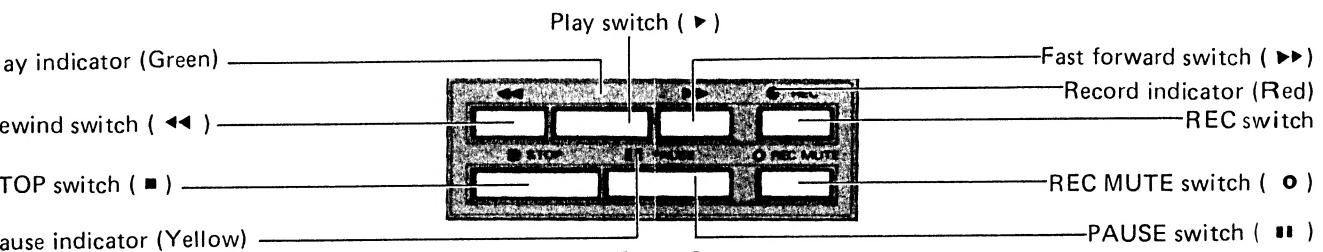


Figure 2

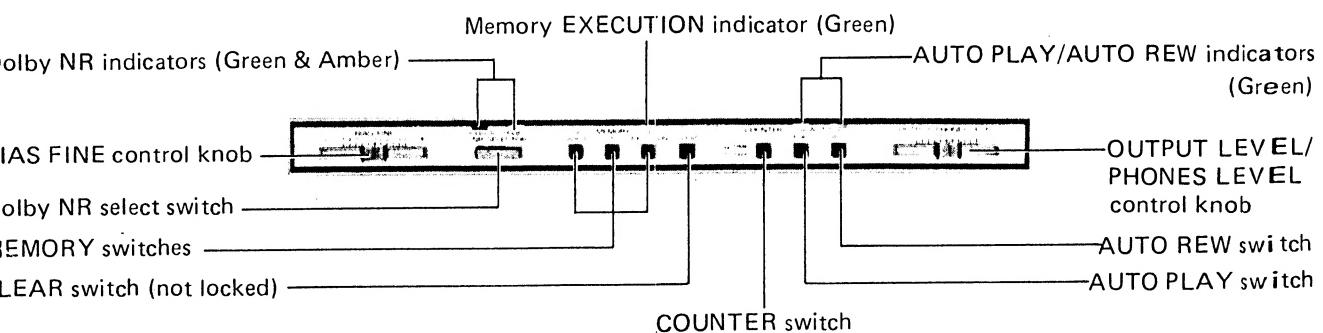


Figure 3

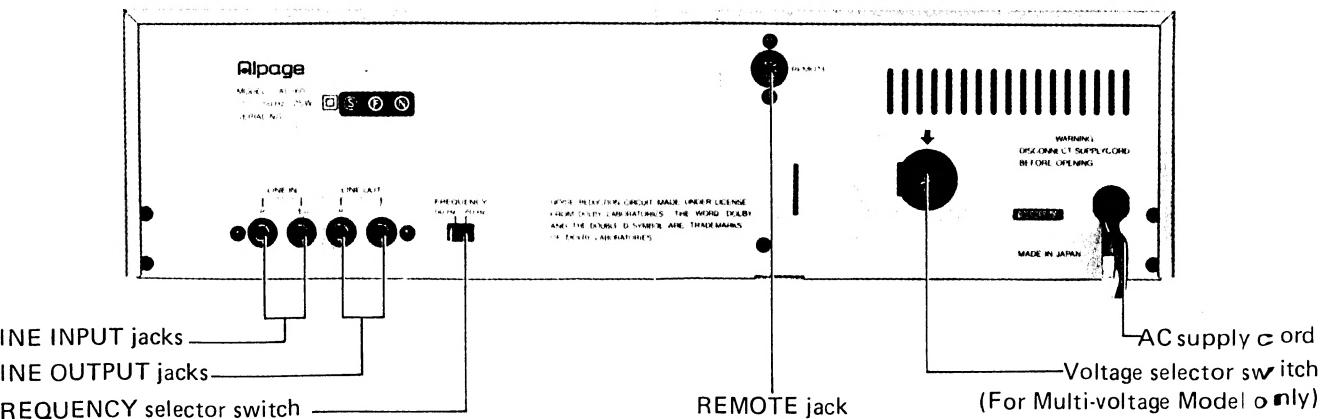


Figure 4

**1. Removal of Top Cover**

- (1) Remove six screws marked "○" as shown in Figures 5 and 6.
- (2) Remove the top cover in the direction of the arrow as shown in Figure 5.

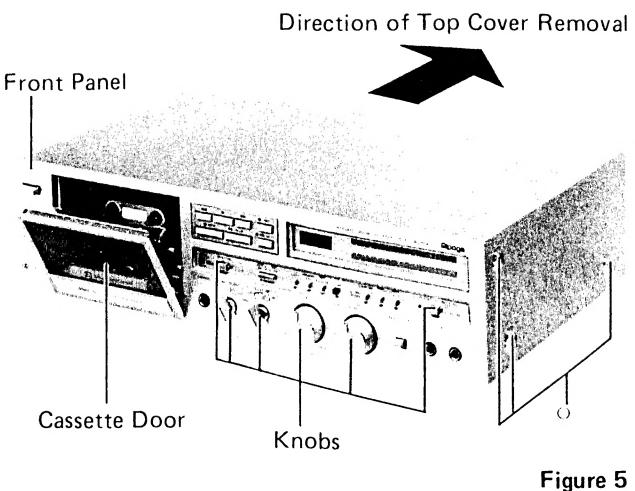


Figure 5

**2. Removal of Front Panel with Keyboard**

- (1) After removal of top cover, pull out six knobs as shown in Figure 5.
- (2) Remove the cassette door upward as shown in Figure 5.
- (3) Remove seven screws marked "△" as shown in Figures 7 and 8.
- (4) Disconnect all wires from the Keyboard switch P.C. Board.
- (5) Remove the front panel, with Keyboard switch P.C. Board.

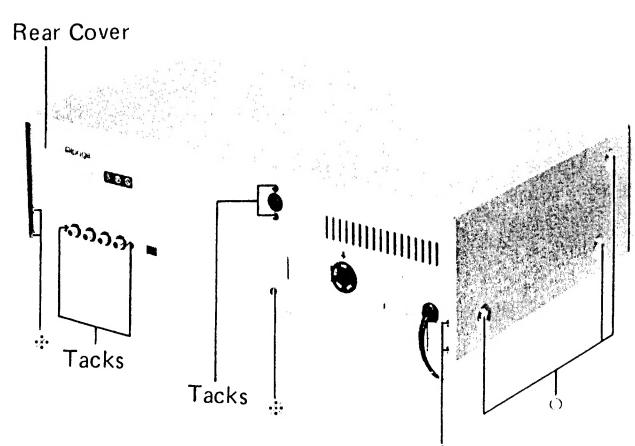


Figure 6

**3. Removal of Rear Cover**

- (1) Remove five screws marked "◊" as shown in Figure 6.
- (2) Remove four tacks as shown in Figure 6.
- (3) Remove the rear cover.

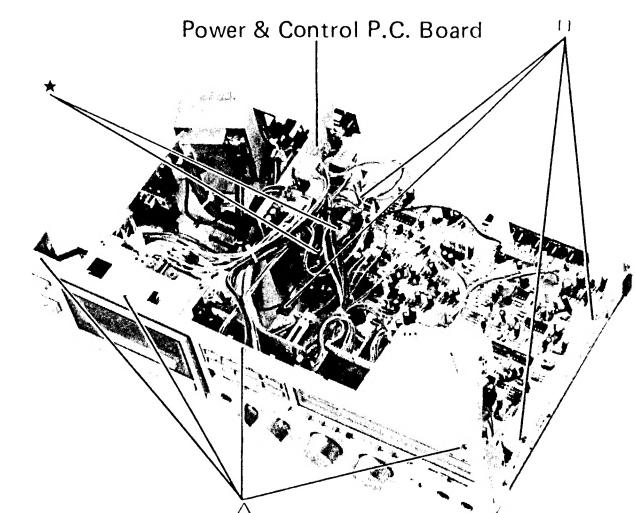


Figure 7

**4. Removal of Master Board P.C. Board**

- (1) After removal of rear cover, remove four screws marked "□" as shown in Figure 7.
- (2) Remove three jack stoppers as shown in Figure 9.
- (3) Remove four nuts as shown in Figure 9.
- (4) Disconnect all wires from the P.C. Board.

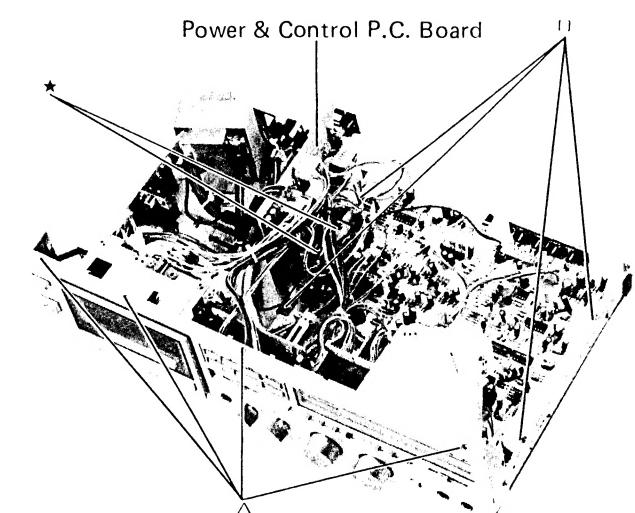


Figure 8

**5. Removal of Power & Control P.C. Board**

- (1) After removal of top cover and rear cover, remove two screws marked "★" as shown in Figure 7.
- (2) Disconnect all wires from the P.C. Board.

**6. Removal of Switch & Volume P.C. Board**

- (1) After removal of top cover and front panel, remove five screws marked "▲" as shown in Figure 9.
- (2) Disconnect all wires from the P.C. Board.

**7. Removal of Optical Meter with FL. Counter & Lamp P.C. Board**

- (1) After removal of top cover and front panel, remove three screws marked "#" as shown in Figure 10.
- (2) Disconnect all wires from the FL counter and Lamp P.C. Board.
- (3) Remove the optical meter with FL counter and Lamp P.C. Board.

**8. Removal of Cassette Deck**

- (1) Remove the top cover (Refer to page 4).
- (2) Push EJECT button to open the cassette door.
- (3) Pull the cassette cover ① in the direction of the arrow as shown in Figure 11 to take it off from the deck.
- (4) Remove five screws ② to ⑥ as shown in Figure 11 to take off from the deck.
- (5) Remove the connector ⑦ to take off from the cassette deck as shown in Figure 11.
- (6) Remove the connectors ⑧ and ⑨ from waster board P.C. Board as shown in Figure 11.
- (7) Remove the connector ⑩ from power & control P.C. Board as shown in Figure 11.
- (8) Remove the connectors ⑪ and ⑫ from power & control P.C. Board to take off the cassette deck from inside the set as shown in Figure 12.

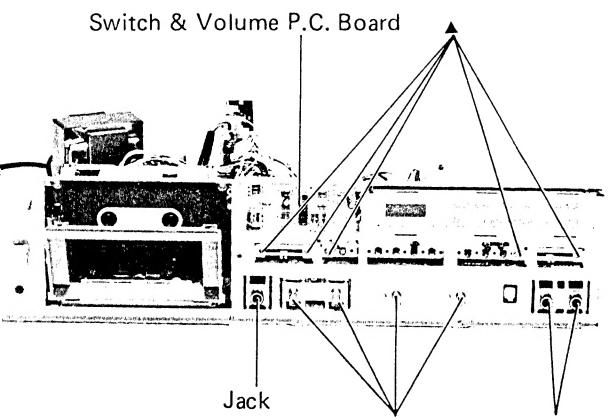
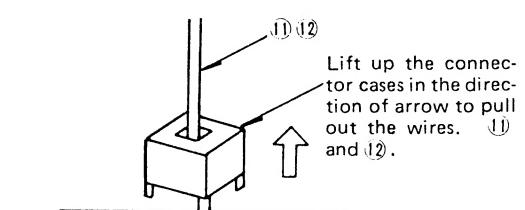


Figure 9

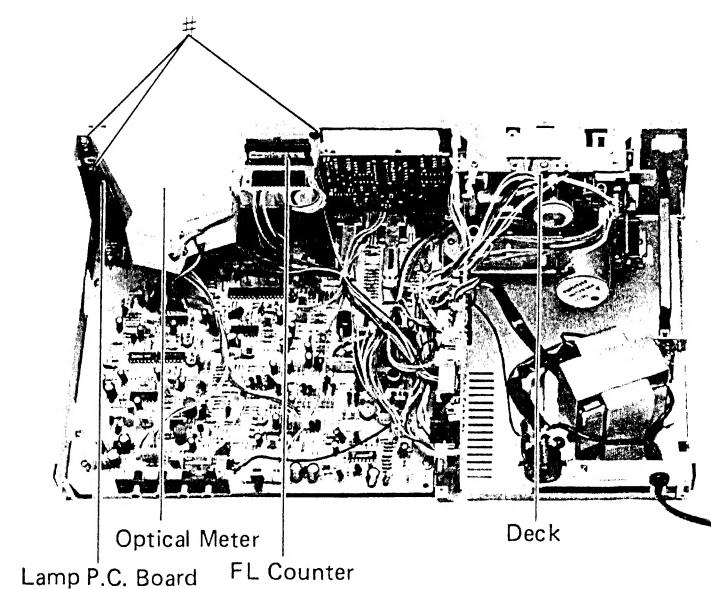


Figure 10

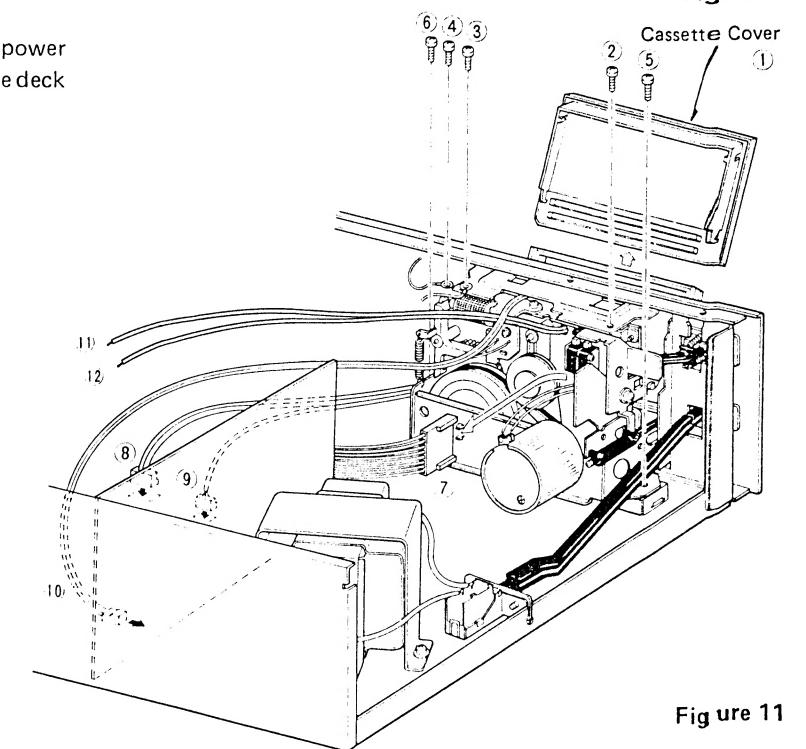
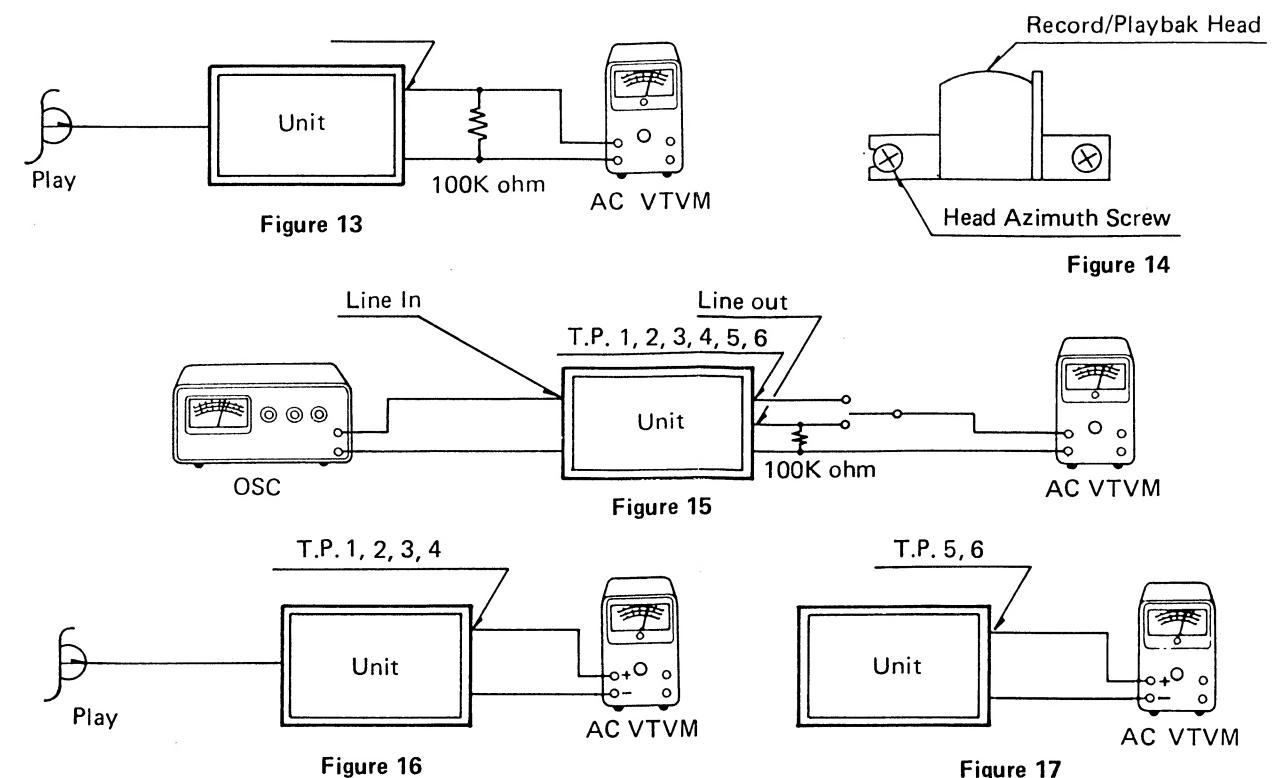


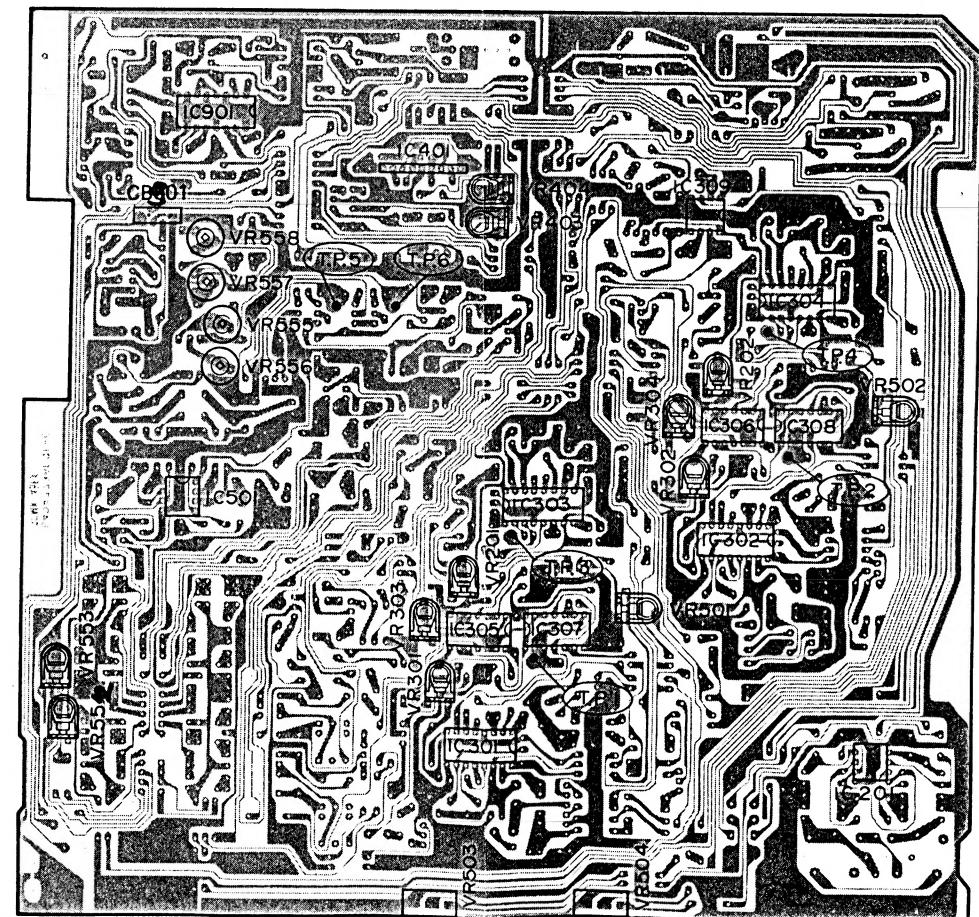
Figure 11

## Adjustment Procedures

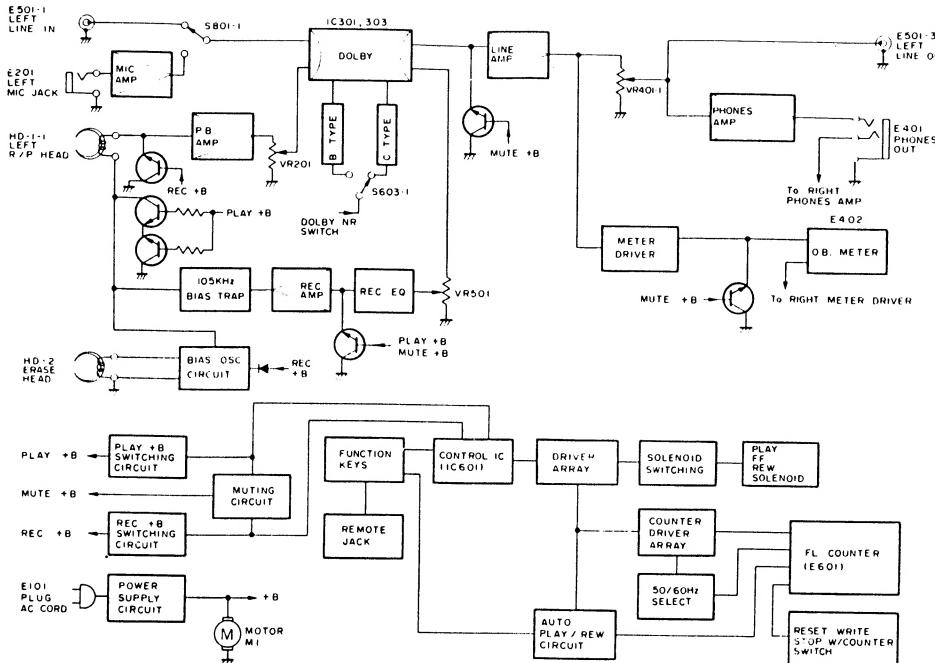
STEP	DESCRIPTION		MODE (SWITCH)	ADJUST POINTS	TEST POINTS	CONNECTION INSTRUCTION	REMARKS			
1	Head Azimuth Adjustment		Play Tape: Nor NR: Off	Head Azimuth Screw (Figure 14)	Line Out	Figure 13	Test Tape: MTT-114 Adjust for Maximum Output VR: Max (VR401)			
2	Dolby Level Adjustment	(1) Encode Level Adjustment	Record Tape: Nor NR: Off	VR503 VR504	T.P.1 T.P.2	Figure 15	Line Input: 400 Hz, 300mV Test Point Output: 580mV			
				VR303 VR304	T.P.3 T.P.4	Figure 15	Test Point Output: 580mV			
3	Input Adjustment	(2) Decode Level Adjustment	Play Tape: Nor NR: Off	VR201 VR202	T.P.3 T.P.4	Figure 16	Test Tape: MTT-150 Test Point Output: 580mV			
				VR301 VR302	T.P.1 T.P.2	Figure 16	Test Point Output: 580mV			
4	Recording Level Adjustment	(1)	Record Tape: Nor NR: Off	VR503 VR504	Line Out	Figure 15	Line Input: 400 Hz, 300mV Test Point Output: 500mV			
				VR403 VR404	Level Meter Reading	Figure 15	Line Input: 400 Hz, 300mV Adjust for 0 dB			
5	Recording Bias Adjustment	(2)	Record Tape: Metal NR: Off	VR501 VR502	T.P.5 T.P.6	Figure 15	Line Input: 400 Hz, 300mV Line Output: 500mV Test Point Output: 4.5mV Bias Cut: Remove a connector "CB901" (See Adjustment Location)			
5				VR555 VR556	T.P.5 T.P.6	Figure 17	Input: Non Test Point Output: 100mV			
				VR557 VR558	T.P.5 T.P.6	Figure 17	Input: Non Test Point Output: 55mV			
				VR559	T.P.5 T.P.6	Figure 17	Input: Non Test Point Output: 50mV			
				VR553	T.P.5 T.P.6	Figure 17	Input: Non Test Point Output: 45mV			



## Adjustment Locations



## Block Diagram



## Replacement of Mechanical Parts

### Removal of Cassette Deck

- 1) Remove the cassette deck. (Refer to page 5)

### Replacement of Head

- 1) Remove two screws marked "▲" from the cassette door bracket of the cassette deck as shown in Figure 19, and the cassette door can be removed.
- 2) Remove two screws marked "□" and wires from both sides of the recording head "A" as shown in Figure 18, and it can be removed. Remove two screws marked "■" and wires from both sides of the erase head "B" as shown in Figure 18, and it can be removed.
- 3) After replacement with a perfect head, put it together in the opposite way to disassembly.
- 4) After finishing assembling, adjust head azimuth with test tape (MTT-114). (Refer to page 6) Apply screw lock after adjustment.

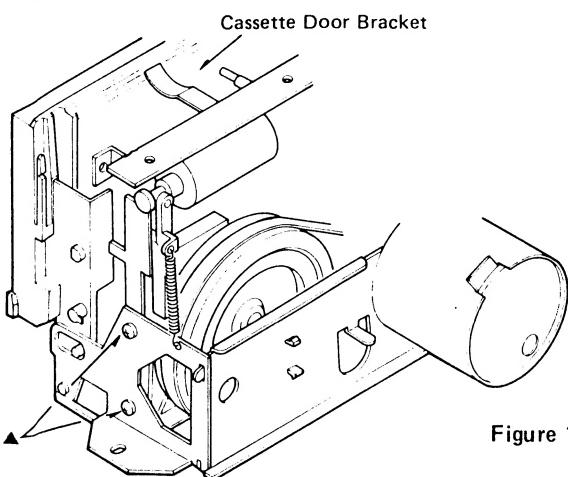


Figure 19

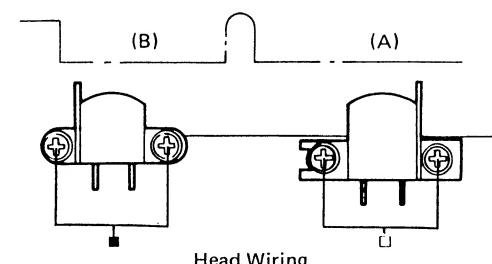


Figure 18

### Replacement of Belt and Flywheel

- 1) Remove a screw marked "□" and the motor bracket, two belts and the flywheel can be removed as shown in Figure 20.
- 2) After replacement with a perfect belt and a flywheel, clean them with isopropyl alcohol and put them together in the opposite way to disassembly.
- 3) After finishing assembling, confirm tape speed and wow/flutter with test tape (MTT-111).

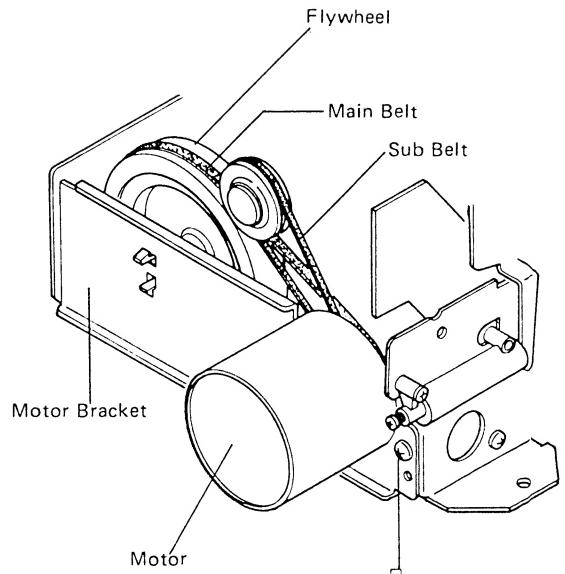


Figure 20

### Replacement of Motor

- 1) Remove a screw marked "□" as shown in Figure 20 and two screws marked "★" and two wires (white, white/red) from motor side as shown in Figure 21, and the motor can be removed.
- 2) After replacement with a perfect motor, put it back in the opposite way to disassembly.
- 3) After finishing assembling, confirm tape speed and wow/flutter with test tape (MTT-111).

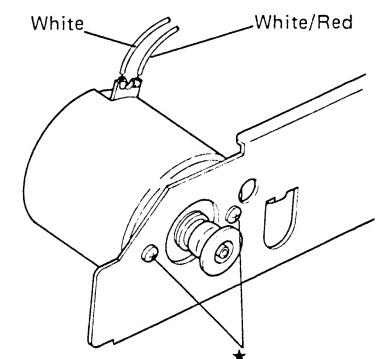


Figure 21

### Replacement of Pinch Roller

- 1) Remove a washer to take off pinch roller assembly from the cassette deck as shown in Figure 22.
- 2) After replacement with a perfect pinch roller, clean it with isopropyl alcohol and put it back in the opposite way to disassembly.
- 3) After finishing assembling, confirm tape speed and wow/flutter with test tape (MTT-111).

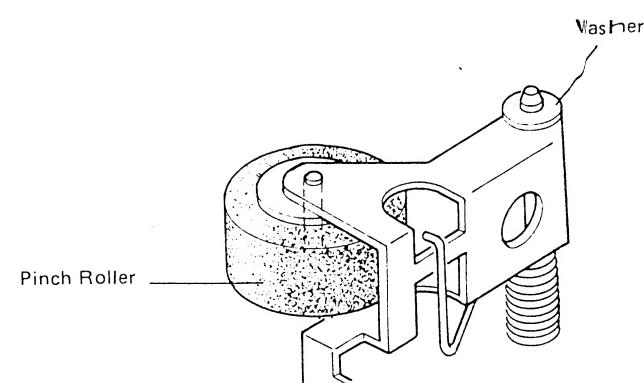


Figure 22

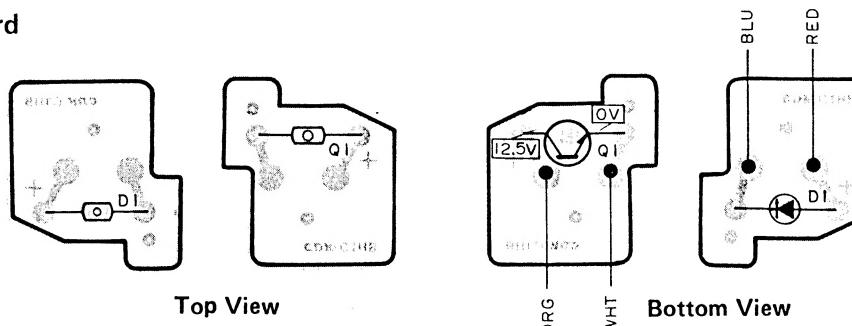
## Trouble Shooting

Symptom	Possible Cause	Remedies
No power	1. Defective power switch 2. Defective DC supply block 3. Defective power connections	1. Replace switch. 2. Check and repair DC power. 3. Check and repair wiring.
No power to motor	1. Defective motor 2. Defective Servo	1. Replace motor. 2. Replace motor.
Distorted sound	1. Record/Play head dirty 2. Defective cassette tape 3. Record/Play head magnetized 4. Record/Play head defective	1. Clean head. 2. Replace tape. 3. Demagnetize head with head eraser. 4. Replace head.
High frequency deteriorated	1. Record/Play head Azimuth improperly adjusted 2. Record/Play head dirty 3. Record/Play head magnetized 4. Excessive Wow/Flutter 5. Record/Play head defective 6. Cassette tape defective	1. Readjust head azimuth. 2. Clean head. 3. Demagnetize head. 4. Follow the item under excessive Wow/Flutter. 5. Replace head. 6. Replace tape.
Excessive Wow/Flutter	1. Flywheel assembly defective 2. Motor defective 3. Defective Servo 4. Drive belt defective 5. Pinch Roller assembly defective 6. Slippage between tape and pinch roller 7. Idler pulley defective 8. Tape counter defective 9. Improper take-up torque 10. Defective tape cassette	1. Replace with better one. 2. Replace motor. 3. Replace motor. 4. Replace drive belt. 5. Replace with better one. 6. Clean pinch roller. 7. Replace idler pulley. 8. Replace tape counter. 9. Replace take-up mechanism clean oil and dirt from turntable and take-up roller. 10. Replace tape.
Signal-to-Noise Ratio Deteriorated	1. Record/Play head magnetized 2. Record/Play head dirty 3. Record/Play head defective 4. Output amplifier defective 5. Cassette tape defective	1. Demagnetize head. 2. Clean head. 3. Replace head. 4. Repair amplifier. 5. Replace tape.
Loss of channel separation	1. Record/Play head defective	1. Replace head.
Level variations	1. Record/Play head dirty 2. Record/Play head defective 3. Record/Play head misadjusted 4. Cassette tape defective	1. Clean head. 2. Replace head. 3. Readjust head. 4. Replace tape.
Improper tape travel	1. Pinch roller misadjusted 2. Weak pinch roller pressure 3. Capstan defective (Binding is Bearing) 4. Pinch roller defective 5. Record/Play head misadjusted	1. Reinstall pinch roller. 2. Replace pinch roller spring. 3. Clean bearing and Lubricate. 4. Replace pinch roller. 5. Readjust head.

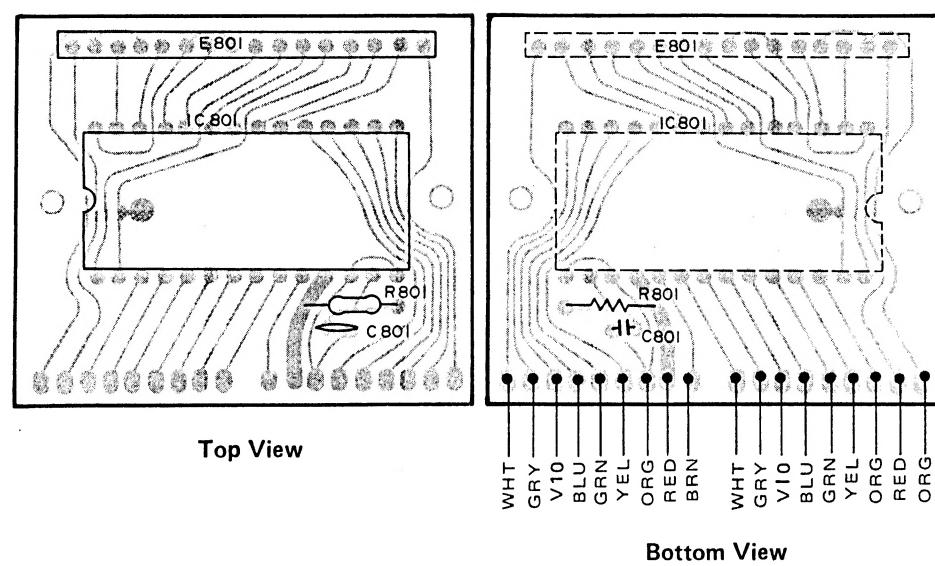
Symptom	Possible Cause	Remedies
Tape speed too fast/slow	1. Defective cassette tape 2. Defective motor 3. Defective servo	1. Replace tape. 2. Replace motor. 3.. Replace motor.
Tape does not move	1. Defective cassette tape 2. Defective motor 3. Defective servo 4. Drive belt off 5. Reel hub defective 6. Pinch roller not contacting capstan 7. Defective power connections 8. Cassette loaded incorrectly 9. Drive belt out of place	1. Replace tape. 2. Replace motor. 3. Replace motor. 4. Replace belt. 5. Replace reel. 6. Replace pinch roller spring. 7. Check and repair wiring. 8. Set the tape properly. 9. Reinstall belt.
Drive belt out of place	1. Idler pulley misadjusted 2. Motor misadjusted 3. Drive belt defective 4. Excessive clearance between flywheel and flywheel spacer	1. Reinstall idler pulley. 2. Reinstall motor. 3. Replace belt. 4. Replace flywheel spacer.
Does not record	1. Record/Play head defective 2. Record/Play head dirty 3. Record amp defective 4. Defective record interlock switch 5. Cassette has safety tabs removed 6. Broken head wire 7. Bias oscillator defective 8. Input jack defective	1. Replace head. 2. Clean head. 3. Repair amplifier. 4. Replace switch. 5. Fix tabs. 6. Check and repair wiring. 7. Check and repair. 8. Replace jack.
Does not playback	1. Record/Play head dirty 2. Record/Play head defective 3. Defective playback amplifier 4. Defective output buffer amplifier 5. Defective tape output jack 6. Defective Dolby circuit 7. Wire between Record/Play head and playback amplifier broken 8. Improper tape travel 9. Defective preamp output jack	1. Clean head 2. Replace head. 3. Repair amplifier. 4. Repair amplifier. 5. Replace jack. 6. Repair Dolby circuit. 7. Check wiring and repair amplifier. 8. Replace tape. 9. Replace jack
Does not erase	1. Defective erase head 2. Erase head dirty 3. Bias oscillator defective 4. Broken wire on head	1. Replace head. 2. Clean head. 3. Check and repair bias oscillator 4. Resolder wire.

## Parts Layout on P.C. Boards

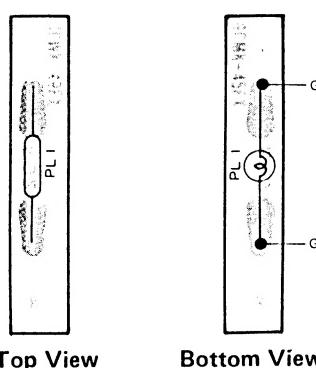
### Sensor P.C. Board



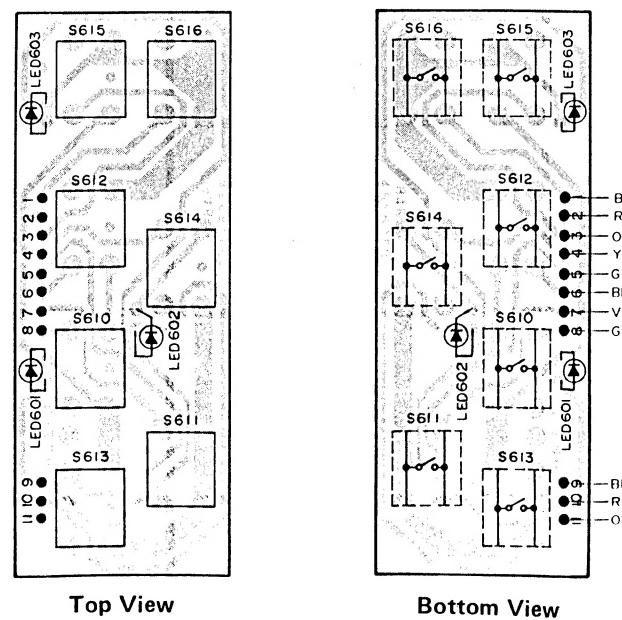
### F. L. Counter P.C. Board



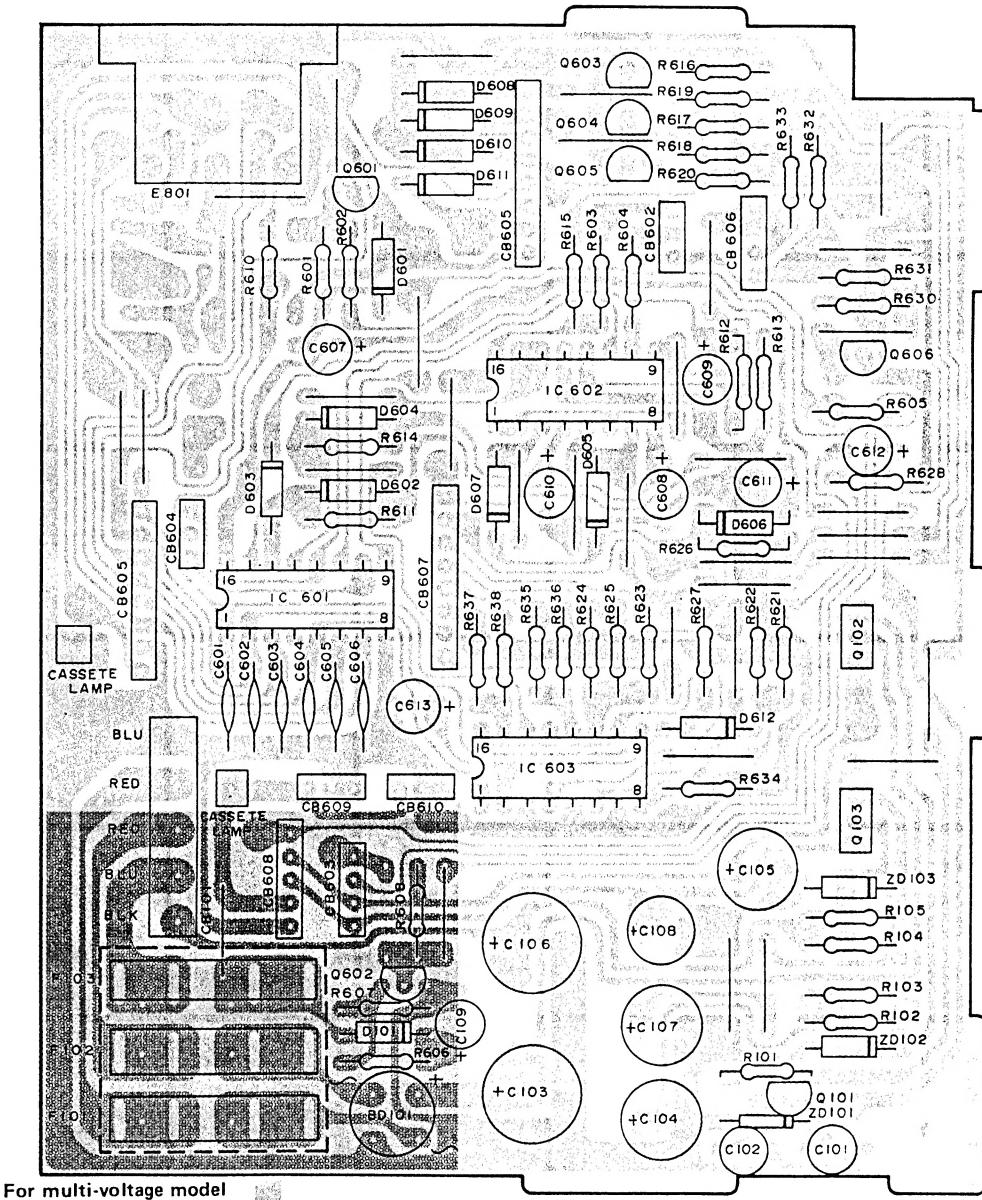
### Lamp P.C. Board



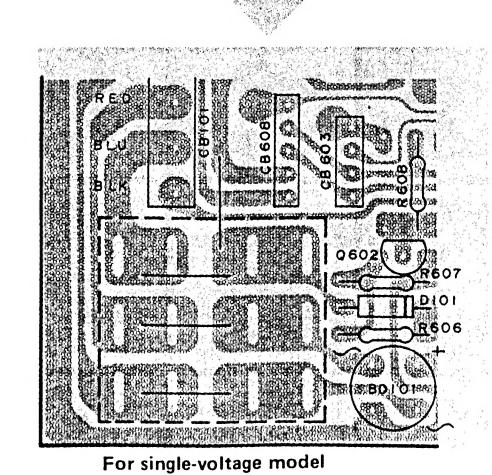
### Key Board P.C. Board



### Power & Control P.C. Board



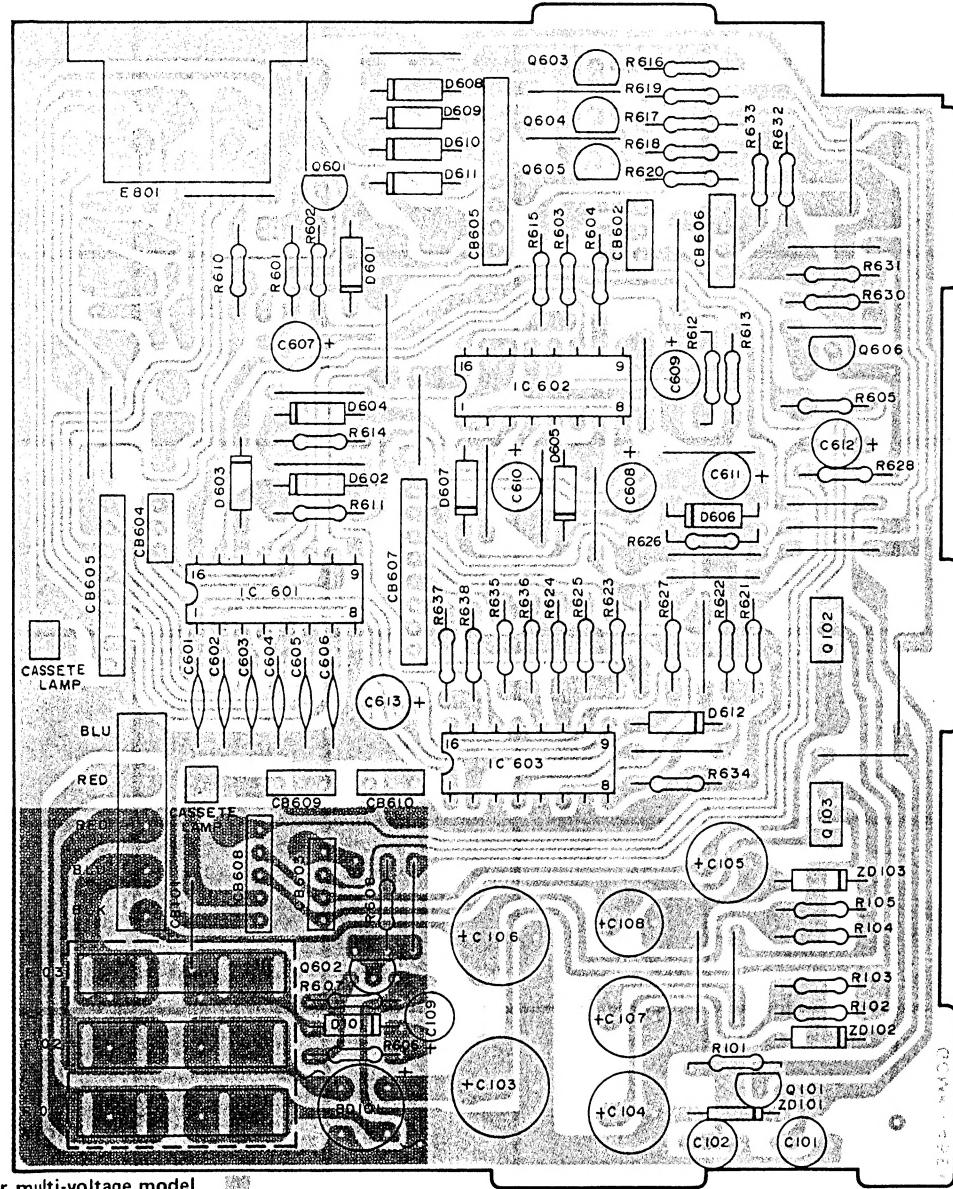
For multi-voltage model



For single-voltage model

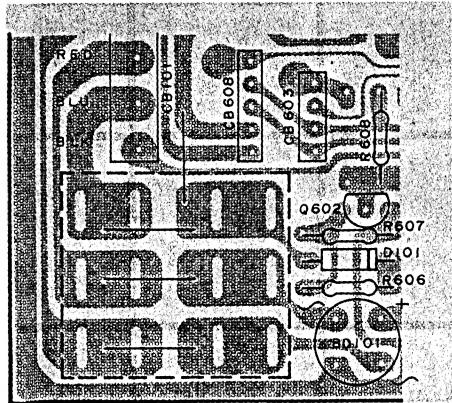
IC 601
1 5.3V
2 5.3V
3 5.3V
4 5.3V
5 5.3V
6 5.3V
7 5.3V
8 OV
9 5.3V
10 REC
11 OTHER
12 PAUSE
13 OTHER
14 PLAY
15 FF
16 OTHER
17 5.3V
IC 603
1 5.3V
2 OV
3 OV
4 OV
5 OV
6 OV
7 OV
8 OV
9 5.3V
10 OV
11 OV
12 OV
13 OV
14 5.3V
15 OV
16 OV

## Power & Control P.C. Board



For multi-voltage model

### Top View



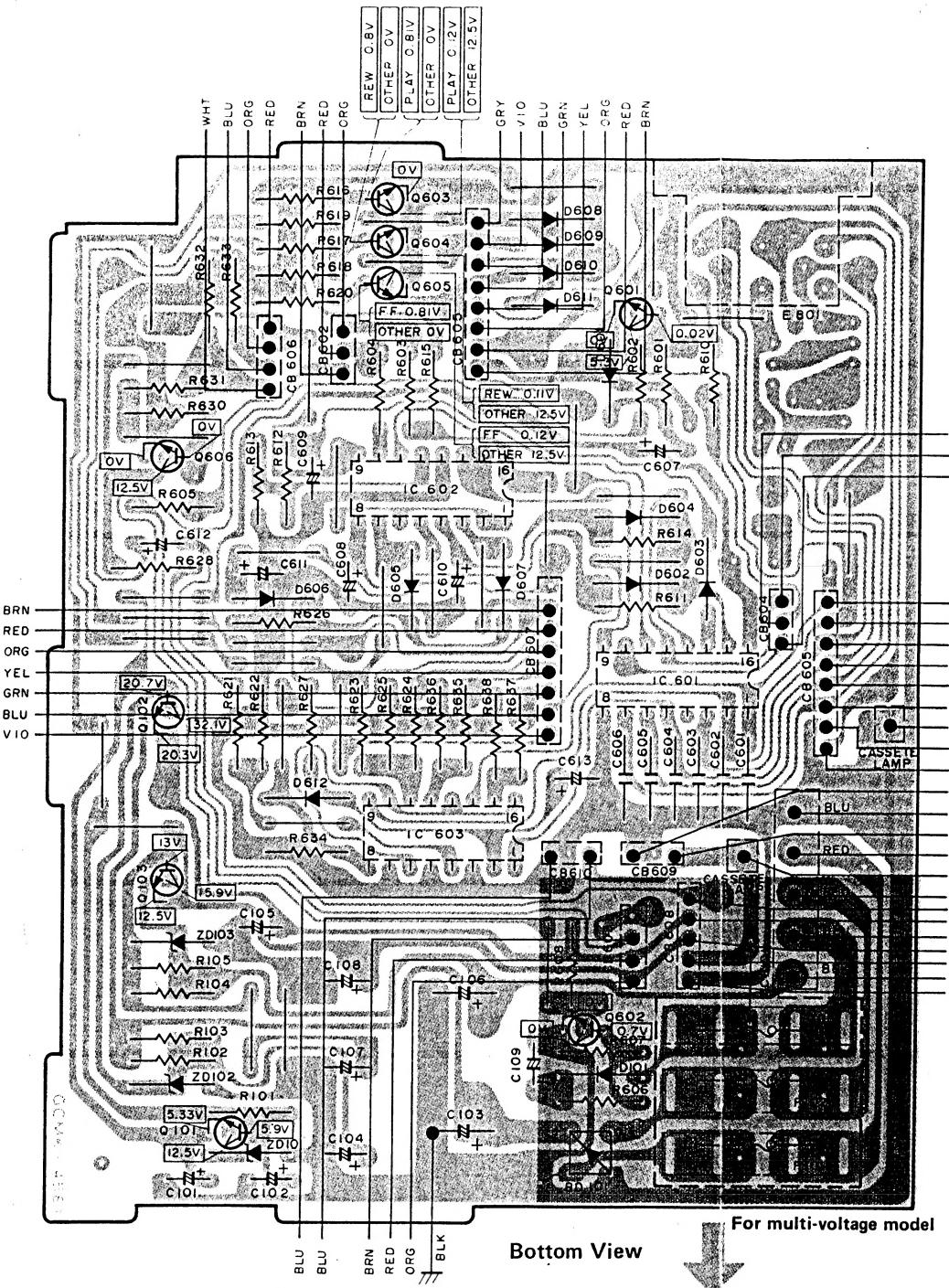
### For single-voltage model

IC601

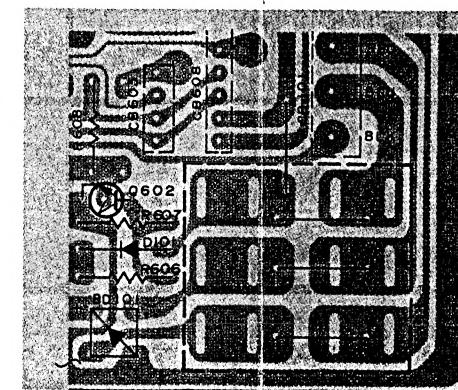
1		5.3V
2		5.3V
3		5.3V
4		
5		5.3V
6		5.3V
7		5.3V
8		OV
9		5.3V
10	REC	4.5
	OTHER	OV
11	PAUSE	5.2
	OTHER	OV
12	PLAY	4.9
	OTHER	OV
13	REW	5.1
	OTHER	OV
14	FF,REW	5V
	OTHER	OV
15	FF	5.3
	OTHER	OV
16		5.3V

IC603

1	5.3V
2	0V
3	0V
4	0V
5	
6	0V
7	0V
8	0V
9	5.3V
10	0V
11	0V
12	0V
13	0V
14	5.3V
15	0V
16	0V



### Bottom View



### For single-voltage model

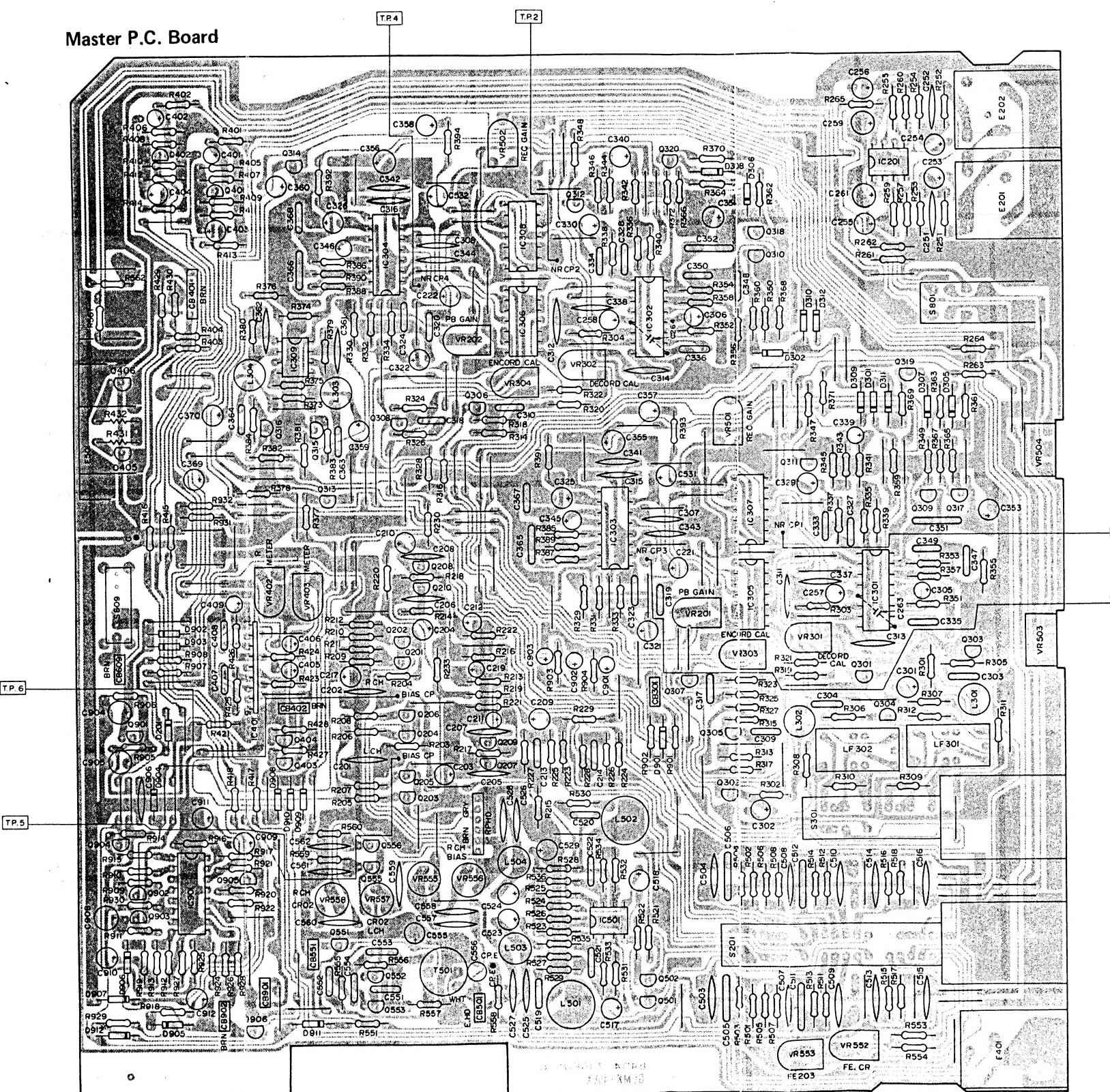
IC602

1	12.5V	
2	12.5V	
3		
4	REW	4.8V
	OTHER	OV
5		
6	12.5V	
7	FF	4.3V
	OTHER	OV
8	FF	4.9V
	OTHER	OV
9	12.5V	
10	PAUSE	4.5V
	OTHER	OV
11	PAUSE	5.2V
	OTHER	OV
12	FF,REW	0.6V
	OTHER	OV
13	OV	
14	PLAY	4.9V
	OTHER	OV
15	PLAY	4.9V
	OTHER	OV
16	PLAY	4.2V
	OTHER	OV

AL-60

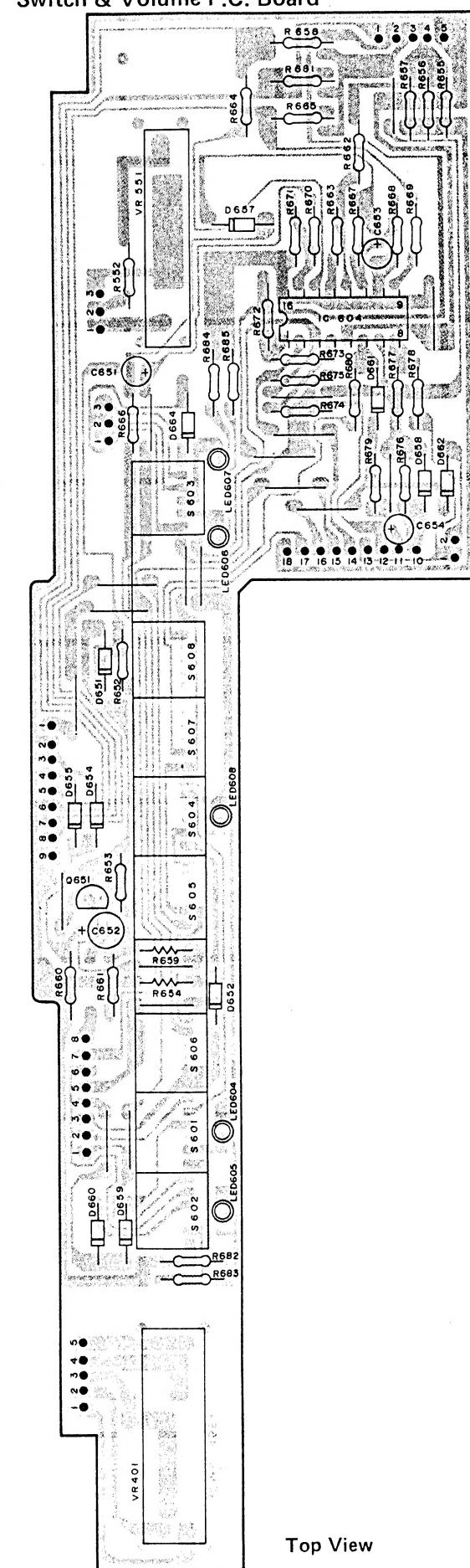
AL-60

## Master P.C. Board

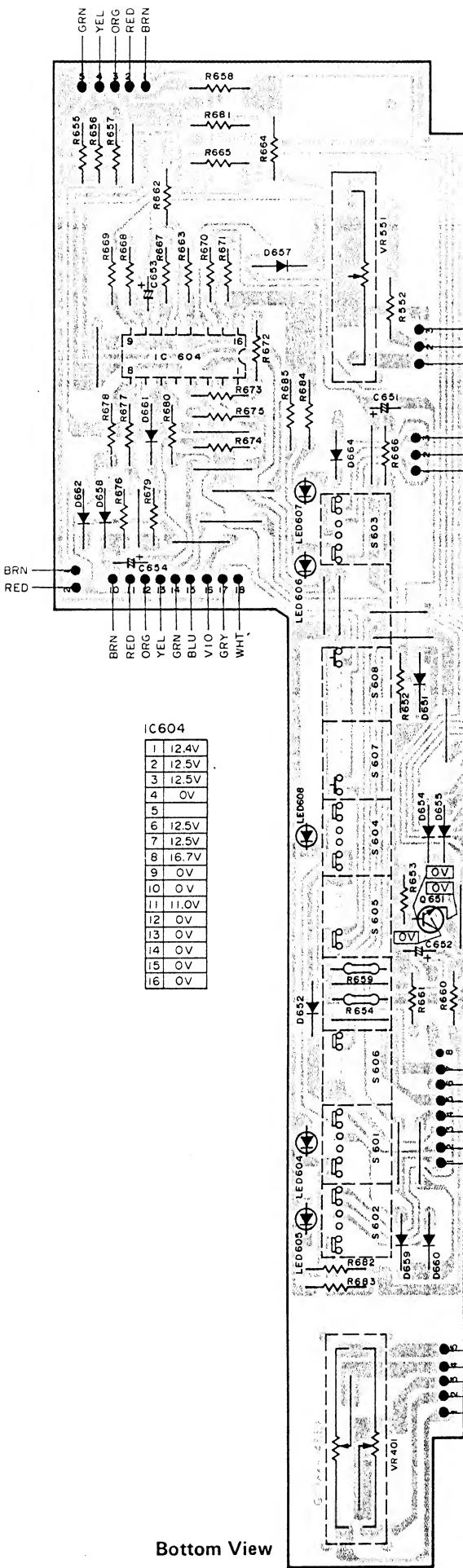


### Top View

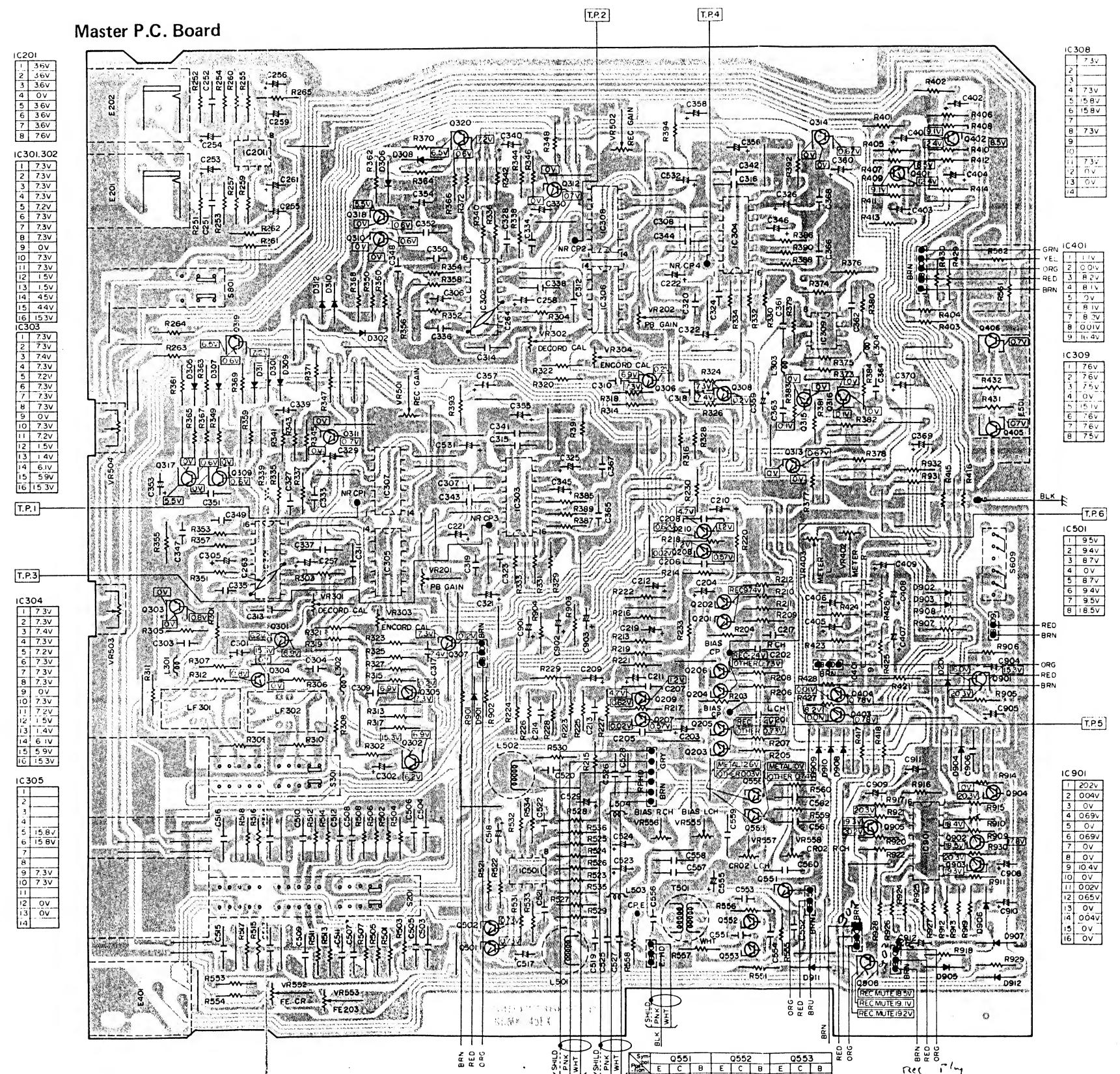
## Switch & Volume P.C. Board



### Top View

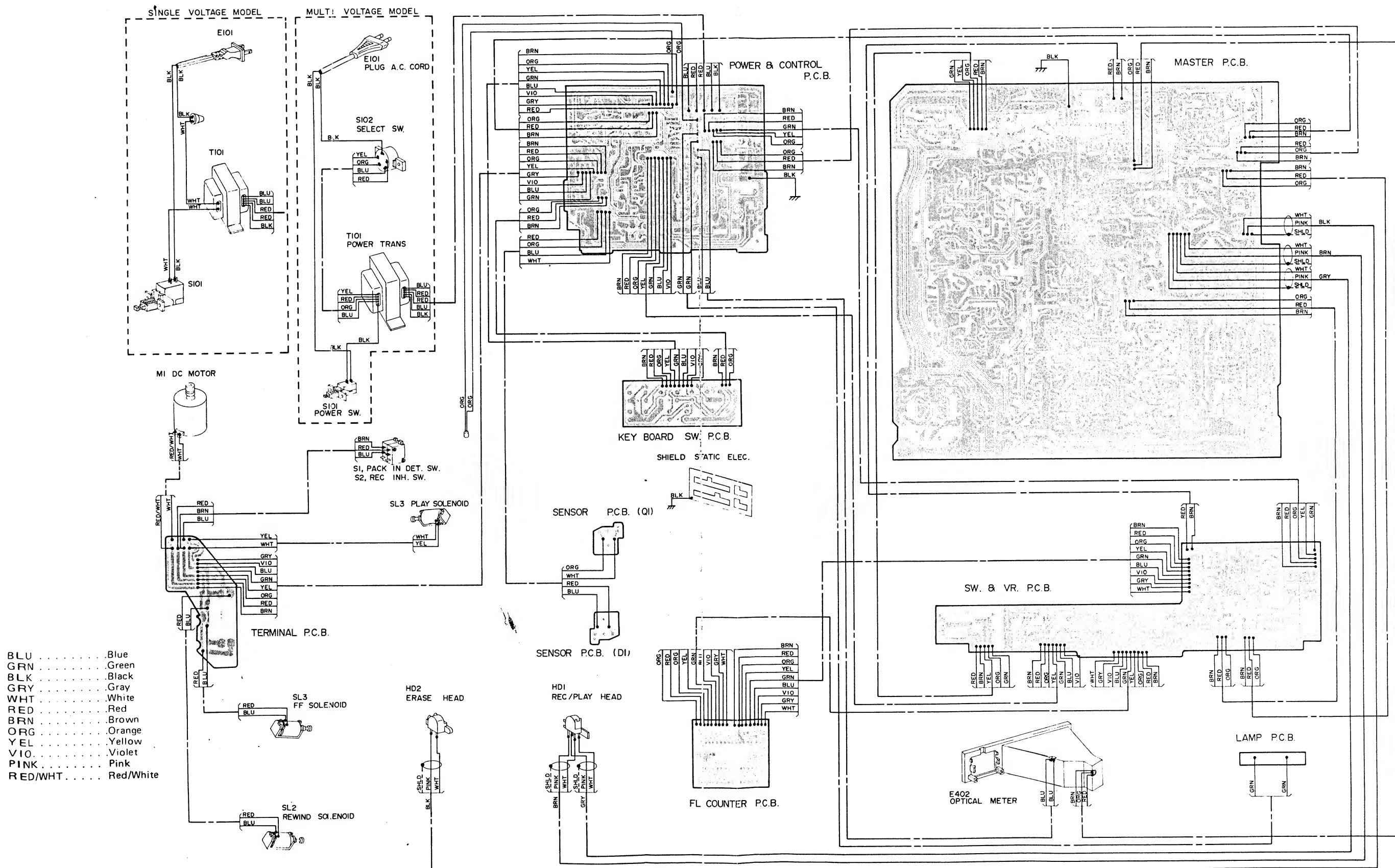


Master P.C. Board

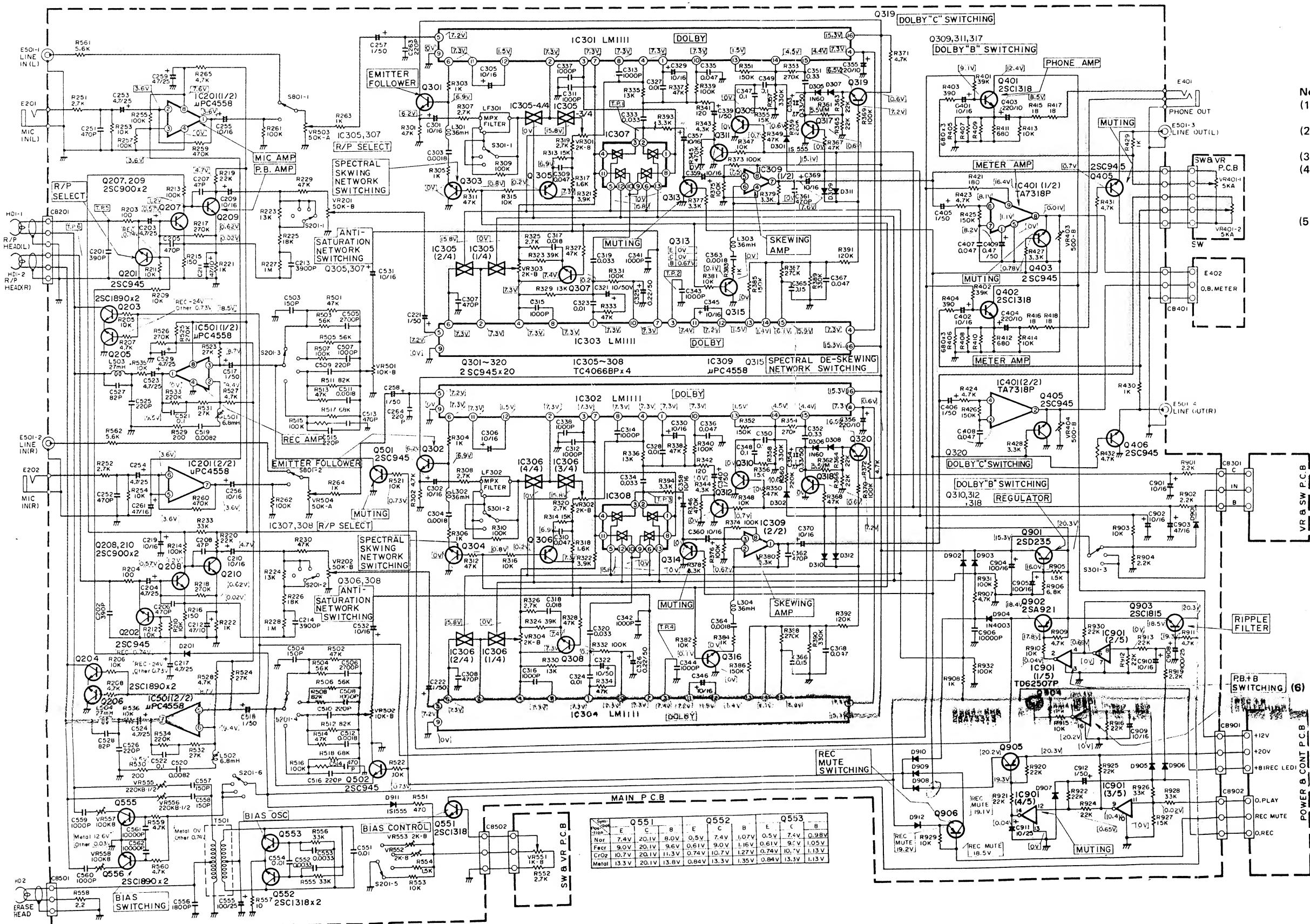


### Bottom View

## Wiring Diagram



## Schematic Diagram (1/2)

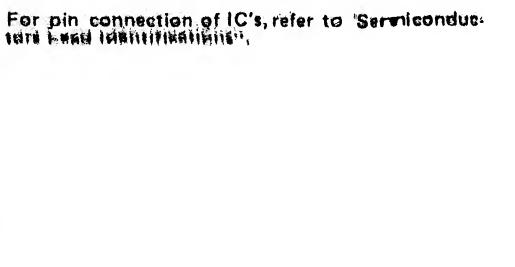


### Notes:

- All resistance values are in ohms. K = 1,000, M = 1,000,000.
- All capacitance values are in microfarads.
- P = 1/1,000,000.
- Unspecified voltages are measured in stop mode.
- Switch position  
S201 (Tape Select): Metal position  
S301 (Dolby NR/MPX Filter): (Both) Off position  
S801 (Input Select): Line position
- Semiconductors

IC201, 309, 501	$\mu$ PC4558
IC301 to 304	LM1111A
IC305, 306, 307, 308	TC4066BP/MC14066BCP
IC401	TA7318AP
IC901	TD62507P
Q201, 202, 301 to 320, Q403, to 406, 501, 502, Q903	2SC945/2SC1815
Q203 to 206, 555, 556	2SC1890/2SC1980
Q207 to 210	2SC90/2SC732
Q401, 402, 551 to 553	2SC1318/2SC509
Q901	2SD235/2SD880
Q904 to 906	2SA733
Q902	2SA921
D904	1N4008/1OE2
D201, 301, 302, 307 to 312 D901 to 903, 905 to 912	MA150
D305, 306	1N60

For pin connection of IC's, refer to 'Semiconductor Index'.





## Electrical Parts List

Resistors (All resistors are carbon film,  $\frac{1}{4}$ W,  $\pm 5\%$  unless otherwise noted.)  
 $\mu$ F = microfarads, pF = picofarads

Symbol No.	Part No.	Description
<b>Master P.C. Board</b>		
<b>IC's</b>		
IC201	51T43471U02	$\mu$ PC4558C
IC301	51S47808F01	Dolby LM1111A
IC302	51S47808F01	Dolby LM1111A
IC303	51S47808F01	Dolby LM1111A
IC304	51S47808F01	Dolby LM1111A
IC305	51T47739F01	TC4066BP
or	51T40941U01	MC14066 BCP
IC306	51T47739F01	TC4066BP
or	51T40941U01	MC14066BCP
IC307	51T47739F01	TC4066BP
or	51T40941U01	MC14066BCP
IC308	51T47739F01	TC4066BP
or	51T40941U01	MC14066BCP
IC309	51T43471U02	$\mu$ PC4558C
IC401	51T41803U01	TA7318AP-2
IC501	51T43471U02	$\mu$ PC4558C
IC901	51T47738F01	TD62507P
<b>Transistors</b>		
Q201	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q202	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q203	48T43394P01	2SC1890E-F
or	48T41196U03	2SC1980-T
Q204	48T43394P01	2SC1890E-F
or	48T41196U03	2SC1980-T
Q205	48T43394P01	2SC1890E-F
or	48T41196U03	2SC1980-T
Q206	48T43394P01	2SC1890E-F
or	48T41196U03	2SC1980-T
Q207	48S40149P01	2SC900E
or	48S40246G01	2SC732BL
Q208	48S40149P01	2SC900E
or	48S40246G01	2SC732BL
Q209	48S40149P01	2SC900E
or	48S40246G01	2SC732BL

Symbol No.	Part No.	Description
Q210	48S40149P01	2SC900E
or	48S40246G01	2SC732BL
Q301	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q302	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q303	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q304	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q305	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q306	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q307	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q308	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q309	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q310	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q311	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q312	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q313	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q314	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR

Symbol No.	Part No.	Description
Q315 or or or Q316 or or	48T43525F02 48S44578J01 48T43525F03 2SC945L-P 2SC1815-Y 2SC1815-GR	2SC945L-P 2SC1815-Y 2SC1815-GR
Q317 or or or Q318 or or	48T43525F02 48S44578J01 48T43525F03 2SC945L-P 2SC1815-Y 2SC1815-GR	2SC945L-P 2SC1815-Y 2SC1815-GR
Q319 or or or Q320 or or	48T43525F02 48S44578J01 48T43525F03 2SC945L-P 2SC1815-Y 2SC1815-GR	2SC945L-P 2SC1815-Y 2SC1815-GR
Q401 or Q402 or Q403 or or	48T40832F03 48S43239G02 48T40832F03 2SC1318NC-R 2SC509-Y	2SC1318NC-R 2SC509-Y
Q404 or or or Q405 or or	48T43525F02 48S44578J01 48T43525F03 2SC1815-Y 2SC945L-P 2SC1815-GR	2SC1815-Y 2SC945L-P 2SC1815-GR
Q406 or or Q501 or or	48T44578J01 48S43525F02 48T43525F03 2SC945L-P 2SC1815-Y 2SC1815-GR	2SC945L-P 2SC1815-Y 2SC1815-GR
Q502 or or Q551 or	48T43525F02 48S44578J01 48T43525F03 2SC945L-P 2SC1815-Y 2SC1815-GR	2SC945L-P 2SC1815-Y 2SC1815-GR
	48T40832F03 48S43239G02	2SC1318NC-R 2SC509-Y

Symbol No.	Part No.	Description
Q552	48T40832F03	2SC1318NC-R
Q553	48T40832F03	2SC1318NC-R
Q555	48T43394P01	2SC1890E-F
or	48T41196U03	2SC1980-T
Q556	48T43394P01	2SC1890E-F
or	48T41196U03	2SC1980-T
Q901	48S40662G05	2SD235-Y
or	48T42620F02	2SD880-Y
Q902	48T42941U01	2SA921S
or	48T42941U02	2SA921T
Q903	48T43525F02	2SC945L-P
or	48S44578J01	2SC1815-Y
or	48T43525F03	2SC1815-GR
Q904	48T40081T03	2SA733 (P)
Q905	48T40081T03	2SA733 (P)
Q906	48T40081T03	2SA733 (P)
<b>Diodes</b>		
D201	48T51582F01	MA150
D301	48T51582F01	MA150
D302	48T51582F01	MA150
D305	48B41768G01	1N60
D306	48B41768G01	1N60
D307	48T51582F01	MA150
D308	48T51582F01	MA150
D309	48T51582F01	MA150
D310	48T51582F01	MA150
D311	48T51582F01	MA150
D312	48T51582F01	MA150
D901	48T51582F01	MA150
D902	48T51582F01	MA150
D903	48T51582F01	MA150
D904	48T40477U01 or 48C40235G02	1N4003 10E2
D905	48T51582F01	MA150
D906	48T51582F01	MA150
D907	48T51582F01	MA150
D908	48T51582F01	MA150
D909	48T51582F01	MA150
D910	48T51582F01	MA150
D911	48T51582F01	MA150
D912	48T51582F01	MA150

Symbol No.	Part No.	Description
<b>Switches</b>		
S201	40T47780F01	SRZ64S (Tape Select)
S301	40T47781F01	SRZ43N (Dolby NR/MPX)
S609	40T41239F01	Slide Select (50 Hz/60 Hz)
S801	40T45538F01	SUF12 (Input Select)
<b>Filters &amp; Transformer</b>		
LF301	51T42537U01	Filter, MPX LP-V20
LF302	51T42537U01	Filter, MPX LP-V20
T501	25T50431F01	Transformer, OSC
<b>Jacks &amp; Plate</b>		
E201	9T45549F05	Jack, Microphone 6.3 (Metal)
E202	9T45549F05	Jack, Microphone 6.3 (Metal)
E401	9T45549F12	Jack, Microphone 6.3 (Metal)
E501	9B44393P01	Plate, Phono
<b>Coils</b>		
L301	24T47741F01	Inductor, 36mH
L302	24T47741F01	Inductor, 36mH
L303	24T47741F01	Inductor, 36mH
L304	24T47741F01	Inductor, 36mH
L501	24S41199U11	Inductor, 6.8mH
L502	24S41199U11	Inductor, 6.8mH
L503	24T44499P01	Inductor, 27mH
L504	24T44499P01	Inductor, 27mH
<b>Capacitors</b>		
C201	8S44505P44	Ceramic 390 pF
C202	8S44505P44	Ceramic 390 pF
C203	23S40657F16	Electrolytic 4.7 uF/25V
C204	23S40657F16	Electrolytic 4.7 uF/25V
C205	8S44505P45	Ceramic 470 pF
C206	8S44505P45	Ceramic 470 pF
C207	8S44505P29	Ceramic 47 pF
C208	8S44505P29	Ceramic 47 pF
C209	23S40657F10	Electrolytic 10 uF/16V
C210	23S40657F10	Electrolytic 10 uF/16V
C211	23S40657F07	Electrolytic 47 uF/10V
C212	23S40657F07	Electrolytic 47 uF/10V
C213	8S40656F08	Mylar 0.0039 uF
C214	8S40656F08	Mylar 0.0039 uF
C217	23D44333G05	Electrolytic 4.7 uF/25V
C219	23S40657F10	Electrolytic 10 uF/16
C221	23S40657F28	Electrolytic 1 uF/50V
C222	23S40657F28	Electrolytic 1 uF/50V
C251	8S44505P45	Ceramic 470 pF
C252	8S44505P45	Ceramic 470 pF
C253	23S40657F16	Electrolytic 4.7 uF/25V
C254	23S40657F16	Electrolytic 4.7 uF/25V
C255	23S40657F10	Electrolytic 10 uF/16V
C256	23S40657F10	Electrolytic 10 uF/16V
C257	23S40657F28	Electrolytic 1 uF/50V
C258	23S40657F28	Electrolytic 1 uF/50V
C259	23S40657F20	Electrolytic 47 uF/25V
C261	23S41198U27	Electrolytic 47 uF/16V
C263	8S40805F03	Ceramic 390 pF
C264	8S40805F03	Ceramic 390 pF
C301	23S40657F10	Electrolytic 10 uF/16V
C302	23S40657F10	Electrolytic 10 uF/16V
C303	8S40656F04	Mylar 0.0018 uF
C304	8S40656F04	Mylar 0.0018 uF
C305	23S40657F10	Electrolytic 10 uF/16V
C306	23S40657F10	Electrolytic 10 uF/16V
C307	8S44505P45	Ceramic 470 pF
C308	8S44505P45	Ceramic 470 pF
C309	8S40656F21	Mylar 0.047 uF
C310	8S40656F21	Mylar 0.047 uF
C311	8S44505P49	Ceramic 1000 pF
C312	8S44505P49	Ceramic 1000 pF
C313	8S44505P49	Ceramic 1000 pF
C314	8S44505P49	Ceramic 1000 pF
C315	8S44505P49	Ceramic 1000 pF
C316	8S44505P49	Ceramic 1000 pF
C317	8S40656F16	Mylar 0.018 uF
C318	8S40656F16	Mylar 0.018 uF
C319	8S40656F19	Mylar 0.033 uF
C320	8S40656F19	Mylar 0.033 uF
C321	23S41198U12	Electrolytic 10 uF/50V
C322	23S41198U12	Electrolytic 10 uF/50V
C323	8S40656F13	Mylar 0.01 uF
C324	8S40656F13	Mylar 0.01 uF
C325	23T42478F20	Electrolytic 0.22 uF/50V
C326	23T42478F20	Electrolytic 0.22 uF/50V

\* When replacing any part of C217, C909, C910, C911, R916, R917 in multi-voltage models which belong to manufacturer's serial number 10610001 to 10611000, be sure to exchange all six parts for specified parts on the parts list. In this case, take off 4.7  $\mu$ F and 10  $\mu$ F capacitors which may be fixed on the pattern side of the master P.C. Board.

Symbol No.	Part No.	Description
C327	8S40656F13	Mylar 0.01 uF
C328	8S40656F13	Mylar 0.01 uF
C329	23S40657F10	Electrolytic 10 uF/16V
C330	23S40657F10	Electrolytic 10 uF/16V
C333	8S40656F19	Mylar 0.033 uF
C334	8S40656F19	Mylar 0.033 uF
C335	8S40656F21	Mylar 0.047 uF
C336	8S40656F21	Mylar 0.047 uF
C337	8S44505P49	Ceramic 1000 pF
C338	8S44505P49	Ceramic 1000 pF
C339	23S40657F28	Electrolytic 1 uF/50V
C340	23S40657F28	Electrolytic 1 uF/50V
C341	8S44505P49	Ceramic 1000 pF
C342	8S44505P49	Ceramic 1000 pF
C343	8S44505P49	Ceramic 1000 pF
C344	8S44505P49	Ceramic 1000 pF
C345	23S40657F10	Electrolytic 10 uF/16V
C346	23S40657F10	Electrolytic 10 uF/16V
C347	8S41442F25	Mylar 0.1 uF
C348	8S44503P25	Mylar 0.1 uF
C349	8S41442F25	Mylar 0.1 uF
C350	8S41442F25	Mylar 0.1 uF
C351	8S44503P31	Mylar 0.33 uF
C352	8S44503P31	Mylar 0.33 uF
C353	23T42478F21	Electrolytic 0.33 uF/50V
C354	23T42478F21	Electrolytic 0.33 uF/50V
C355	23S40657F09	Electrolytic 220 uF/10V
C356	23S40657F09	Electrolytic 220 uF/10V
C357	23S40657F10	Electrolytic 10 uF/16V
C358	23S40657F10	Electrolytic 10 uF/16V
C359	23S40657F10	Electrolytic 10 uF/16V
C360	23S40657F10	Electrolytic 10 uF/16V
C361	8S44505P45	Ceramic 470 pF
C362	8S44505P45	Ceramic 470 pF
C363	8S40656F04	Mylar 0.0018 uF
C364	8S40656F04	Mylar 0.0018 uF
C365	8S44503P27	Mylar 0.15 uF
C366	8S44503P27	Mylar 0.15 uF
C367	8S40656F21	Mylar 0.047 uF
C368	8S40656F21	Mylar 0.047 uF
C369	23S40657F10	Electrolytic 10 uF/16V
C370	23S40657F10	Electrolytic 10 uF/16V
C401	23S40657F10	Electrolytic 10 uF/16V
C402	23S40657F10	Electrolytic 10 uF/16V
C403	23S40657F09	Electrolytic 220 uF/10V

Symbol No.	Part No.	Description
C404	23S40657F09	Electrolytic 220 uF/10V
C405	23S40657F28	Electrolytic 1 uF/50V
C406	23S40657F28	Electrolytic 1 uF/50V
C407	8S44503P21	Mylar 0.047 uF
C408	8S40656F21	Mylar 0.047 uF
C409	23S40657F27	Electrolytic 0.47 uF/50V
C503	8S44505P39	Ceramic 150 pF
C504	8S44505P39	Ceramic 150 pF
C505	8S40656F06	Mylar 0.0027 uF
C506	8S40656F06	Mylar 0.0027 uF
C507	8S44505P49	Ceramic 1000 pF
C508	8S44505P49	Ceramic 1000 pF
C509	8S44505P41	Ceramic 220 pF
C510	8S44505P41	Ceramic 220 pF
C511	8S40656F04	Mylar 0.0018 uF
C512	8S40656F04	Mylar 0.0018 uF
C513	8S44505P45	Ceramic 470 pF
C514	8S44505P45	Ceramic 470 pF
C515	8S44505P41	Ceramic 220 pF
C516	8S44505P41	Ceramic 220 pF
C517	23S40657F28	Electrolytic 1 uF/50V
C518	23S40657F28	Electrolytic 1 uF/50V
C519	8S40656F12	Mylar 0.0082 uF
C520	8S40656F12	Mylar 0.0082 uF
C521	8S41442F25	Mylar 0.1 uF
C522	8S41442F25	Mylar 0.1 uF
C523	23S40657F16	Electrolytic 4.7 uF/25V
C524	23S40657F16	Electrolytic 4.7 uF/25V
C525	8S44505P41	Ceramic 220 pF
C526	8S44505P41	Ceramic 220 pF
C527	8S44505P35	Ceramic 82 pF
C528	8S44505P35	Ceramic 82 pF
C529	23S40657F16	Electrolytic 4.7 uF/25V
C531	23S40657F10	Electrolytic 10 uF/16V
C532	23S40657F10	Electrolytic 10 uF/16V
C551	8S40656F13	Mylar 0.01 uF
C552	8S40656F07	Mylar 0.0033 uF
C553	8S40656F07	Mylar 0.0033 uF
C554	8S40656F13	Mylar 0.01 uF
C555	23S41198U35	Electrolytic 100 uF/25V
C556	8T44481F19	Polystyrol 0.0018 uF
C557	8S44505P39	Ceramic 150 pF
C558	8S44505P39	Ceramic 150 pF
C559	8S44505P49	Ceramic 1000 pF
C560	8S44505P49	Ceramic 1000 pF

Symbol No.	Part No.	Description
C561	8S44505P61	Ceramic 10000 pF
C562	8S44505P61	Ceramic 10000 pF
C901	23S40657F10	Electrolytic 10 uF/16V
C902	23S40657F10	Electrolytic 10 uF/16V
C903	23S41198U27	Electrolytic 47 uF/16V
C904	23S40657F14	Electrolytic 100 uF/16V
C905	23S40657F14	Electrolytic 100 uF/16V
C906	8S44505P61	Ceramic 10000 pF
C908	23S40657F21	Electrolytic 100 uF/25V
*C909	23D44333G08	Electrolytic 10 uF/16V
*C910	23D44333G08	Electrolytic 10 uF/16V
*C911	23D44333G09	Electrolytic 10 uF/25V
C912	23S40657F28	Electrolytic 1 uF/50V
<b>Resistors</b>		
R203	6S44593P41	100 ohm
R204	6S44593P41	100 ohm
R205	6S44593P89	10K ohm
R206	6S44593P89	10K ohm
R207	6S44593P81	4.7K ohm
R208	6S44593P81	4.7K ohm
R209	6S44593P89	10K ohm
R210	6S44593P89	10K ohm
R211	6S44593P89	10K ohm
R212	6S44593P89	10K ohm
R213	6S44594P14	100K ohm
R214	6S44594P14	100K ohm
R215	6S44593P45	150 ohm
R216	6S44593P45	150 ohm
R217	6S44594P24	270K ohm
R218	6S44594P24	270K ohm
R219	6S44593P97	22K ohm
R220	6S44593P97	22K ohm
R221	6S44593P65	1K ohm
R222	6S44593P65	1K ohm
R223	6S44593P92	13K ohm
R224	6S44593P92	13K ohm
R225	6S44593P95	18K ohm
R226	6S44593P95	18K ohm
R227	6S44594P36	820K ohm
R228	6S44594P36	820K ohm
R229	6S44594P06	47K ohm
R230	6S44594P06	47K ohm
R231	6S44594P02	33K ohm
R232	6S44593P75	2.7K ohm
R233	6S44593P75	2.7K ohm
R234	6S44593P92	47K ohm
R235	6S44593P92	47K ohm

Symbol No.	Part No.	Description
R252	6S44593P75	2.7K ohm
R255	6S44594P14	100K ohm
R257	6S44594P14	100K ohm
R259	6S44594P30	470K ohm
R260	6S44594P30	470K ohm
R261	6S44594P14	100K ohm
R262	6S44594P14	100K ohm
R263	6S44593P65	1K ohm
R264	6S44593P65	1K ohm
R265	6S44593P81	4.7K ohm
R301	6S44593P81	4.7K ohm
R302	6S44593P81	4.7K ohm
R303	6S44593P65	1K ohm
R304	6S44593P65	1K ohm
R305	6S44593P65	1K ohm
R306	6S44593P65	1K ohm
R307	6S44593P75	2.7K ohm
R308	6S44593P75	2.7K ohm
R309	6S44594P14	100K ohm
R310	6S44594P14	100K ohm
R311	6S44594P06	47K ohm
R312	6S44594P06	47K ohm
R313	6S44593P93	15K ohm
R314	6S44593P93	15K ohm
R315	6S44593P89	10K ohm
R316		

Symbol No.	Part No.	Description
R336	6S44593P92	13K ohm
R337	6S44594P06	47K ohm
R338	6S44594P06	47K ohm
R339	6S44594P14	100K ohm
R340	6S44594P14	100K ohm
R341	6S44594P43	120 ohm
R342	6S44593P43	120 ohm
R343	6S44593P80	4.3K ohm
R344	6S44593P80	4.3K ohm
R345	6S44594P30	470K ohm
R346	6S44594P30	470K ohm
R347	6S44593P89	10K ohm
R348	6S44593P89	10K ohm
R349	6S44594P06	47K ohm
R350	6S44594P06	47K ohm
R351	6S44594P18	150K ohm
R352	6S44594P18	150K ohm
R353	6S44594P24	270K ohm
R354	6S44594P24	270K ohm
R355	6S44593P93	15K ohm
R356	6S44593P93	15K ohm
R357	6S44594P26	330K ohm
R358	6S44594P26	330K ohm
R359	6S44594P22	220K ohm
R360	6S44594P22	220K ohm
R361	6S44594P38	1M ohm
R362	6S44594P38	1M ohm
R363	6S44593P97	22K ohm
R364	6S44593P97	22K ohm
R365	6S44593P97	22K ohm
R366	6S44593P97	22K ohm
R367	6S44594P06	47K ohm
R368	6S44594P06	47K ohm
R369	6S44594P14	100K ohm
R370	6S44594P14	100K ohm
R371	6S44593P81	4.7K ohm
R372	6S44593P81	4.7K ohm
R373	6S44594P14	100K ohm
R374	6S44594P14	100K ohm
R375	6S44594P14	100K ohm
R376	6S44594P14	100K ohm
R377	6S44593P77	3.3K ohm
R378	6S44593P77	3.3K ohm
R379	6S44593P77	3.3K ohm
R380	6S44593P77	3.3K ohm

Symbol No.	Part No.	Description
R381	6S44593P89	10K ohm
R382	6S44593P89	10K ohm
R383	6S44593P65	1K ohm
R384	6S44593P65	1K ohm
R385	6S44594P18	150K ohm
R386	6S44594P18	150K ohm
R387	6S44594P24	270K ohm
R388	6S44594P24	270K ohm
R389	6S44594P26	330K ohm
R390	6S44594P26	330K ohm
R391	6S44594P16	120K ohm
R392	6S44594P16	120K ohm
R393	6S44593P77	3.3K ohm
R394	6S44593P77	3.3K ohm
R401	6S44594P04	39K ohm
R402	6S44594P04	39K ohm
R403	6S44593P55	390 ohm
R404	6S44593P55	390 ohm
R405	6S44593P61	680 ohm
R406	6S44593P61	680 ohm
R407	6S44593P61	680 ohm
R408	6S44593P61	680 ohm
R409	6S44593P61	680 ohm
R410	6S44593P61	680 ohm
R411	6S44593P61	680 ohm
R412	6S44593P61	680 ohm
R413	6S44593P89	10K ohm
R414	6S44593P89	10K ohm
R415	6S44593P23	18 ohm
R416	6S44593P23	18 ohm
R417	6S44593P23	18 ohm
R418	6S44593P23	18 ohm
R421	6S44593P47	180 ohm
R423	6S44593P81	4.7K ohm
R424	6S44593P81	4.7K ohm
R425	6S44594P18	150K ohm
R426	6S44594P18	150K ohm
R427	6S44593P77	3.3K ohm
R428	6S44593P77	3.3K ohm
R429	6S44593P65	1K ohm
R430	6S44593P65	1K ohm
R431	6S44593P81	4.7K ohm
R432	6S44593P81	4.7K ohm
R501	6S44594P06	47K ohm
R502	6S44594P06	47K ohm

Symbol No.	Part No.	Description
R503	6S44594P08	56K ohm
R504	6S44594P08	56K ohm
R505	6S44594P08	56K ohm
R506	6S44594P08	56K ohm
R507	6S44594P14	100K ohm
R508	6S44594P14	100K ohm
R511	6S44594P12	82K ohm
R512	6S44594P12	82K ohm
R513	6S44594P06	47K ohm
R514	6S44594P06	47K ohm
R515	6S44594P14	100K ohm
R516	6S44594P14	100K ohm
R517	6S44594P10	68K ohm
R518	6S44594P10	68K ohm
R521	6S44593P89	10K ohm
R522	6S44593P89	10K ohm
R523	6S44593P99	27K ohm
R524	6S44593P99	27K ohm
R525	6S44594P24	270K ohm
R526	6S44594P24	270K ohm
R527	6S44593P81	4.7K ohm
R528	6S44593P81	4.7K ohm
R529	6S44593P48	200 ohm
R530	6S44593P48	200 ohm
R531	6S44593P99	27K ohm
R532	6S44593P99	27K ohm
R533	6S44594P22	220K ohm
R534	6S44594P22	220K ohm
R535	6S44593P89	10K ohm
R536	6S44593P89	10K ohm
R551	6S44593P57	470 ohm
R553	6S44593P89	10K ohm
R554	6S44593P69	1.5K ohm
R555	6S44594P02	33K ohm
R556	6S44594P02	33K ohm
R557	6S44593P17	10 ohm
R558	6S44593P01	2.2 ohm
R559	6S44593P81	4.7K ohm
R560	6S44593P81	4.7K ohm
R561	6S44593P83	5.6K ohm
R562	6S44593P83	5.6K ohm
R901	6S44593P73	2.2K ohm
R902	6S44593P73	2.2K ohm
R903	6S44593P89	10K ohm
R904	6S44593P73	2.2K ohm

Symbol No.	Part No.	Description
R905	6S44593P69	1.5K ohm
R906	6S44593P85	6.8K ohm
R907	6S44593P81	4.7K ohm
R908	6S44593P65	1K ohm
R909	6S44593P81	4.7K ohm
R910	6S44593P89	10K ohm
R911	6S44593P81	4.7K ohm
R912	6S44593P97	22K ohm
R913	6S44593P97	22K ohm
R914	6S44593P89	10K ohm
R915	6S44593P89	10K ohm
*R916	6S40150T97	22K ohm
*R917	6S40150T97	22K ohm
R918	6S44593P87	8.2K ohm
R919	6S44593P73	2.2K ohm
R920	6S44593P97	22K ohm
R921	6S44593P97	22K ohm
R922	6S44593P97	22K ohm
R924	6S44593P97	22K ohm
R925	6S44593P97	22K ohm
R926	6S44594P02	33K ohm
R927	6S44593P93	15K ohm
R928	6S44594P02	33K ohm
R929	6S44593P89	10K ohm
R930	6S44593P97	22K ohm
R931	6S44594P14	100K ohm
R932	6S44594P14	100K ohm
VR201	18C42061J15	Variable 50K ohm
VR202	18C42061J15	Variable 50K ohm
VR301	18C42061J12	Variable 2K ohm
VR302	18C42061J12	Variable 2K ohm
VR303	18C42061J12	Variable 2K ohm
VR304	18C42061J12	Variable 2K ohm
VR403	18C42061J23	Volume, Solid
VR404	18C42061J23	Volume, Solid
VR501	18C42061J14	Variable 10K ohm
VR502	18C42061J14	Variable 10K ohm
VR552	18C42061J12	Variable 2K ohm
VR553	18C42061J12	Variable 2K ohm
VR555	18T43406P01	Resistor, Variable 220K ohm-B 1/2W
VR556	18T43406P01	Resistor, Variable 220K ohm-B 1/2W

Symbol No.	Part No.	Description
<b>Power &amp; Control P.C. Board</b>		
<b>IC's</b>		
IC 601	51T47110F01	BA843 F 11 E
IC 602	51T47738F01	TD62507P
IC 603	51T47738F01	TD62507P
<b>Transistors</b>		
Q101 or Q102 or Q103 or	48T40832F03 48S43239G02 48T42620F02 ● 48S40662G05 48T42620F02 ● 48S40662G05	2SC1318NC-R 2SC509-Y 2SD880-Y 2SD235-Y 2SD880-Y 2SD235-Y
Q601 or or or Q602 or or	48S44578J01 48S43525F02 48S43525F03 48S44578J01 48S43525F02 48S43525F03	2SC945L-P 2SC1815-Y 2SC1815-GR 2SC945L-P 2SC1815-Y 2SC1815-GR
Q603 or Q604 or Q605 or	48T40832F03 48S43239G02 48T40832F03 48S43239G02 48T40832F03 48S43239G02	2SC1318NC-R 2SC509-Y 2SC1318NC-R 2SC509-Y 2SC1318NC-R 2SC509-Y
Q606 or or	48S44578J01 48S43525F02 48S43525F03	2SC945L-P 2SC1815-Y 2SC1815-GR
<b>Diodes</b>		
D101 D601 D602 D603 D604	48T40477U01 48T51582F01 48T51582F01 48T51582F01 48T51582F01	1N4003 MA150 MA150 MA150 MA150
D605 D606 D607 D608 D609	48T51582F01 48T51582F01 48T51582F01 48T40477U01 48T40477U01	MA150 MA150 MA150 1N4003 1N4003

●: For multi-voltage model only ■: For single voltage model only Others: Common

Symbol No.	Part No.	Description
<b>Power &amp; Control P.C. Board</b>		
<b>IC's</b>		
ZD101	48T40150U33	Zener, HZ6B-3
ZD102	48T40150U80	Zener, HZ20-2
ZD103	48T40150U65	Zener, HZ12B-2
BD101	● 48T50629F01 ■ 48T47455F01	Bridge, WL-02 Bridge, WL-02
<b>Jack &amp; Fuses</b>		
E801	9T50261F01	Jack, Remote Control
F101	● 65T42077U15	Fuse, Semko (T800mA)
F102	● 65T42077U15	Fuse, Semko (T800mA)
F103	● 65T42077U12	Fuse, Semko (T400mA)
<b>Capacitors</b>		
C101	23S40657F10	Electrolytic 10 uF/16V
C102	23S40657F10	Electrolytic 10 uF/16V
C103	23S41198U59	Electrolytic 470 uF/50V
C104	23S41198U42	Electrolytic 220 uF/25V
C105	23S41198U42	Electrolytic 220 uF/25V
C106	23S41198U65	Electrolytic 1000 pF/25V
C107	23S41198U56	Electrolytic 470 uF/16V
C108	23S40657F14	Electrolytic 100 uF/16V
C109	23S40657F28	Electrolytic 1 uF/50V
C601	8S44505P61	Ceramic 10000 pF
C602	8S44505P61	Ceramic 10000 pF
C603	8S44505P61	Ceramic 10000 pF
C604	8S44505P61	Ceramic 10000 pF
C605	8S44505P61	Ceramic 10000 pF
C606	8S44505P61	Ceramic 10000 pF
C607	23S40657F05	Electrolytic 22 uF/10V
C608	23S40657F07	Electrolytic 47 uF/10V
C609	23S40657F10	Electrolytic 10 uF/16V
C610	23S40657F07	Electrolytic 47 uF/10V
C611	23S40657F07	Electrolytic 47 uF/10V
C612	23S40657F10	Electrolytic 10 uF/16V
C613	23S40657F09	Electrolytic 220 uF/10V

Symbol No.	Part No.	Description
<b>Resistors</b>		
R101	6S44593P57	470 ohm
R102	6S44593P75	2.7K ohm
R103	6S44593P75	2.7K ohm
R104	6S44593P61	680 ohm
R105	6S44593P61	680 ohm
R601	6S44594P06	47K ohm
R602	6S44594P06	47K ohm
R603	6S44593P45	150 ohm
R604	6S44593P47	180 ohm
R605	6S44593P77	3.3K ohm
R606	6S44593P87	8.2K ohm
R607	6S44593P75	2.7K ohm
R608	6S44593P97	22K ohm
R610	6S44593P89	10K ohm
R611	6S44593P89	10K ohm
R612	6S44593P97	22K ohm
R613	6S44594P06	47K ohm
R614	6S44593P89	10K ohm
R615	6S44593P59	560 ohm
R616	6S44593P73	2.2K ohm
R617	6S44593P59	560 ohm
R618	6S44593P73	2.2K ohm
R619	6S44593P59	560 ohm
R620	6S44593P73	2.2K ohm
R621	6S44593P93	15K ohm
R622	6S44593P89	10K ohm
R623	6S44594P06	47K ohm
R624	6S44593P89	10K ohm
R625	6S44594P14	100K ohm
R626	6S44593P85	6.8K ohm
R627	6S44593P91	12K ohm
R628	6S44593P89	10K ohm
R630	6S44593P75	3.9K ohm
R631	6S44594P02	33K ohm
R632	6S44593P69	1.5K ohm
R633	6S44593P63	820 ohm
R634	6S44593P87	8.2K ohm
R635	6S44593P97	22K ohm
R636	6S44594P06	47K ohm
R637	6S44593P97	22K ohm
R638	6S44594P06	47K ohm
<b>Volume &amp; Switches</b>		
VR401	18T47779F01	Volume, Slide 5KA x 2
VR551	18T47778F01	Volume, Slide 1KB
S601		
S602		
S603		
S604	40T47745F01	Switch, Push
S605		
S606		
S607		
S608		
D651	48T44813F01	MA165TA
D652	48T44813F01	MA165TA
D654	48T44813F01	MA165TA
D655	48T44813F01	MA165TA
D657	48T44813F01	MA165TA
D658	48T44813F01	MA165TA
D659	48T44813F01	MA165TA
D660	48T44813F01	MA165TA
D661	48T44813F01	MA165TA
D662	48T44813F01	MA165TA
D664	48T44813F01	MA165TA
<b>Capacitors</b>		
C651	23T43247F13	Electrolytic 47 uF/10V
C652	23T43247F05	Electrolytic 1 uF/50V
C653	23T43247F07	Electrolytic 3.3 uF/25V
C654	23T43247F10	Electrolytic 22 uF/16V

●: For multi-voltage model only ■: For single voltage model only

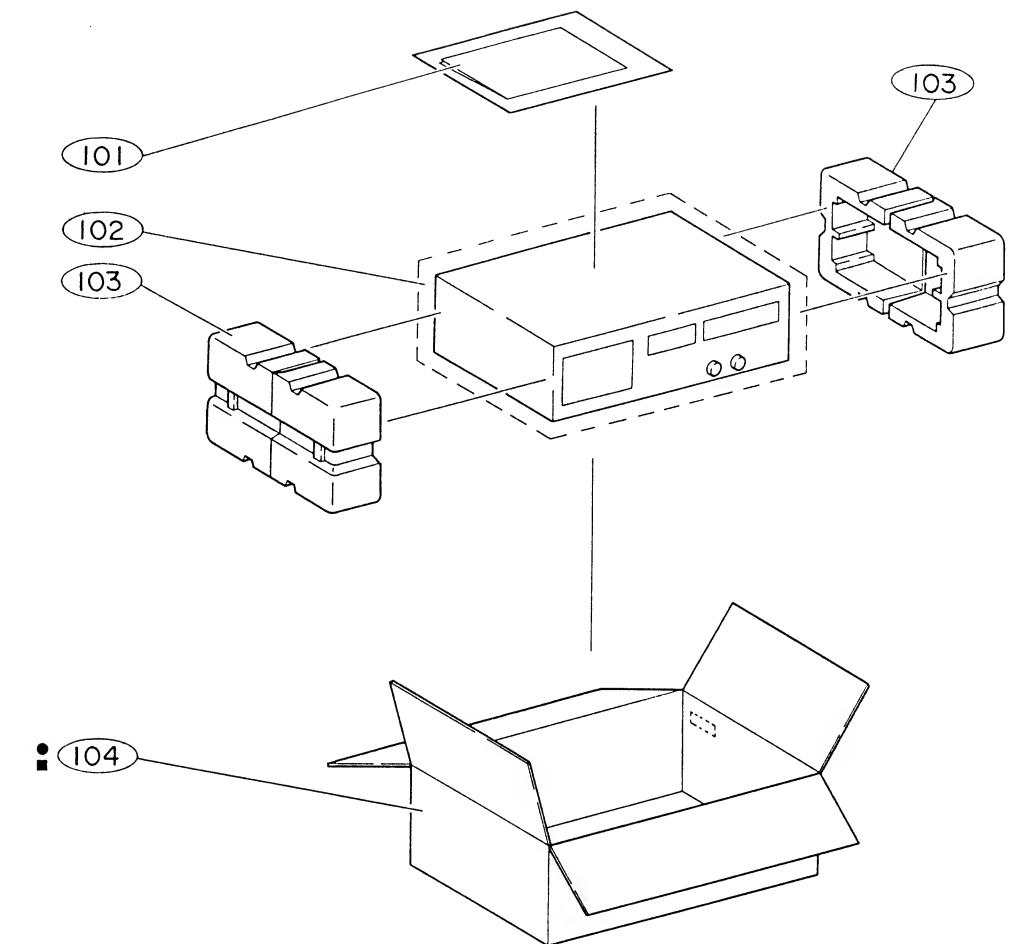
Others: Common

Symbol No.	Part No.	Description
<b>Resistors</b>		
R552	6S44593P75	2.7K ohm
R652	6S44594P06	47K ohm
R653	6S44594P06	47K ohm
R654	6S44593P57	470 ohm
R655	6S44593P61	680 ohm
R656	6S44593P61	680 ohm
R657	6S44593P61	680 ohm
R658	6S44593P85	6.8K ohm
R659	6S44593P97	22K ohm
R660	6S44593P97	22K ohm
R661	6S44593P89	10K ohm
R662	6S44593P97	22K ohm
R663	6S44593P89	10K ohm
R664	6S44593P89	10K ohm
R665	6S44593P85	6.8K ohm
R666	6S44593P97	22K ohm
R667	6S44593P97	22K ohm
R668	6S44594P14	100K ohm
R669	6S44593P89	10K ohm
R670	6S44593P97	22K ohm
R671	6S44593P97	22K ohm
R672	6S44593P89	10K ohm
R673	6S44593P89	10K ohm
R674	6S44593P97	22K ohm
R675	6S44593P89	10K ohm
R676	6S44594P22	220K ohm
R677	6S44593P89	10K ohm
R678	6S44593P89	10K ohm
R679	6S44593P89	10K ohm
R680	6S44593P65	1K ohm
R681	6S44593P85	6.8K ohm
R682	6S44593P57	470 ohm
R683	6S44593P57	470 ohm
R684	6S44593P59	560 ohm
R685	6S44593P59	560 ohm
<b>FL Counter P.C. Board</b>		
IC801	2401-0121	LSI, HD38701A08
E801	2401-0221	FL Counter (FG46B5)
C801	2401-0411	Cap., Ceramic 100 pF
R801	2401-0311	Res., C Film 30K ohm

●: For multi-voltage model only [○: General foreign model, △: Australian model, ☆: English model], ■: For single voltage model only [North American model] Others: Common

Symbol No.	Part No.	Description
<b>Miscellaneous</b>		
D1	AU11C-00	Sensor, LED(TLN104)
E101 ○	28T43812P02	Plug, AC Cord
E101 ■	28T40916U01	Plug, AC Cord
E101 △	28T44061F02	Cord, AC
E101 ▲	28T45338F01	Plug, AC Cord
E402	72T47742F01	Meter, Optical
LED601	48T45518F01	LED, SEL 1331G
LED602	48T45519F01	LED, SEL 1741Y
LED603	48T45517F01	LED, SEL 1112R
HD1	F029-105	Head, Record/Play back
HD2	F030-052	Head, Erase
M1	EG-510ED-2B	Assembly, Motor
PL-1	65T50260F01	Lamp, Pilot
PL-4	65C42544U04	Lamp, Pilot
Q1	AZ11H-00	Sensor, Transistor (TPS605)
S1	FE173-11	Switch, Slide
S2	FE173-11	Switch, Slide
S101 ●	40T45561F01	Switch, Power (SDL1P)
S101 ■	40T47454F01	Switch, Power (SDL1P)
S102 ●	40T40705T01	Switch, Select (Voltage)
S610	40T44505F01	Switch, Touch (Play)
S611	40T44505F01	Switch, Touch (Stop)
S612	40T44505F01	Switch, Touch (F. Forward)
S613	40T44505F01	Switch, Touch (Rewind)
S614	40T44505F01	Switch, Touch (Pause)
S615	40T44505F01	Switch, Touch (Record)
S616	40T44505F01	Switch, Touch (Record Mute)
SL1	F082-044	Assembly, Solenoid
SL2	PKA16106	Assembly, Solenoid
SL3	PKA16106	Assembly, Solenoid
T101 ■	25T44724F01	Transformer, Power
VR503	18T40645F01	Volume, Rotary
VR504	18T40645F01	Volume, Rotary

## Packing Method



## Packing Assembly Parts List

Symbol No.	Part No.	Description	Symbol No.	Part No.	Description
101	1V46400F82	Assembly, Pamphlet	☆	54A40521U01	Label, Made in Japan
101-1	28T44352F01	Plug, Output Cord	☆	54A47796F01	(Front Panel)
101-2	56B40230G14	Sack, Polyethylene	△	54A50155F01	Label, English (Rear Cover)
101-3	68P44890F68	Manual, Owner's	■	54A41728P01	sack, Polyethylene
102	56B40230G23	Label, Australian (Rear Cover)			
103	56C45556F01	Tray, Packing	●	54A41728P03	Label, Caution A
104	56C44544F37	Carton, Packing	■	54A41728P04	(Bottom chassis)
	56C44544F48	Carton, Packing	☆	54A50976F01	Label, Caution B (Top Cover)
			☆	54A47795F01	Label, Serial No. (Carton)
			☆	54A47794F01	Label, AC (AC Cord)
					Label, Fuse (AC Cord)

### Labels

○	54B42124G01	Label, Serial No. (Rear Cover)
○	54B42124G02	Label, Date Cord (Rear Cover)
○	54A41677U01	Label, Head (R/P Head)
○	54B42541F06	Label, Safety (Rear Cover)
■	54A44553G01	Label, CSA (Rear Cover)

●: For multi-voltage model only [○: General foreign model, △: Australian model, ☆: English model], ■: For single voltage model only [North American model] Others: Common

## Cabinet Assembly Parts List

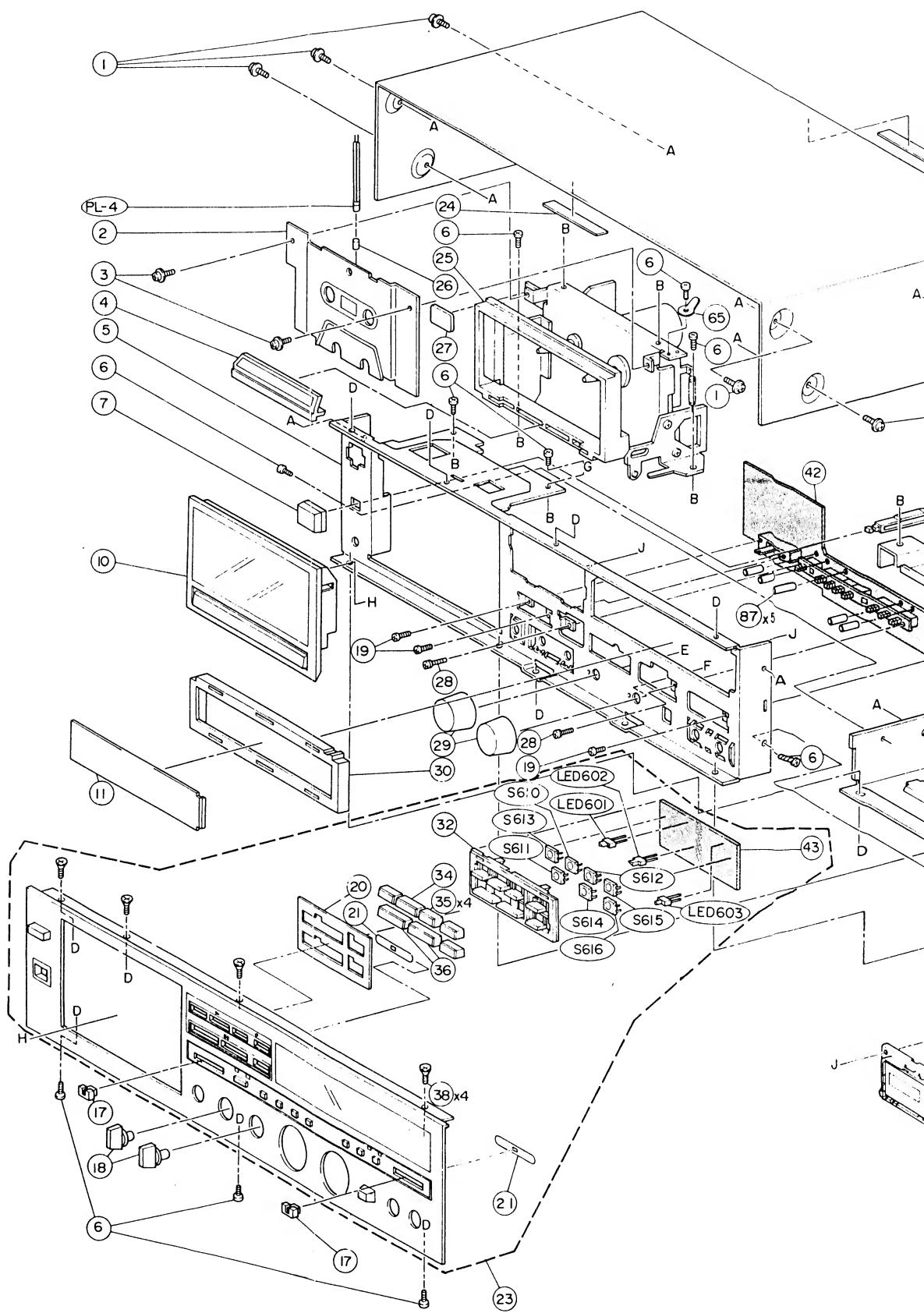
Symbol No.	Part No.	Description
1	3S40036U16	Screw, Tap Tite (B/K) (M4 x 6)
2	15B44924F04	Cover, Dust
3	3S40036U06	Screw, Tap Tite (M3 x 6)
4	13B45448F02	Door, Escutcheon
5		Chassis, Front
6	3S44205G05	Screw, Tap Tite (M3 x 5)
7	36A45460F01	Knob, Power
10	1V46400F80	Assembly, Door
11	61B47368F01	Crystal, Meter
17	36A47372F01	Knob, Control
18	36A45457F01	Knob, Rotary Switch
19	3C40014G07	Screw, Machine (M2 x 4)
20	26B51023F01	Shield, Static Electricity
21	43A47376F01	Spacer, Volume
23	1V46400F78	Assembly, Front Panel
24	75B44632G04	Pad, Cushion
25	81T50752F01	Deck, Cassette
26	43A41728U09	Buch, Lamp
27	43A45760F01	Spacer, Eject
28	3C40014G04	Screw, Machine (M3 x 6)
29	36A47844F01	Knob, Control
30	7B47367F01	Frame, Meter
32	36C45466F01	Knob, Function Key
34	36A45455F01	Knob, Function (20) (Play)
35	36A45454F01	Knob, Function (15) (Rew, FF, Rec, Mute)
36	36A45456F01	Knob, Function (25.5)
38	3S44205G16	Screw, Tap Tite (M3 x 6)
42	1V46400F75	Assembly, Switch & Volume P.C. Board
43	84B45552F01	Panel, Knob Switch
53	3S40036U07	Screw, Tap Tite (M4 x 12)
54	15D45442F02	Cover, Top
55	7A40871F01	Support, Transformer
56	45B45465F01	Support, Transformer
57	7B45444F01	Lever, Power Switch
58		Support, Tape Deck
59	75A42565P13	Cushion, Rubber
60		Chassis, Bottom
61	75A44348F01	Pad, Felt
62	3S44205G38	Screw, Tap Tite (M3 x 6)
63	● 1V46400F76	Assembly, Power & Control P.C. Board
	■ 1V51300F94	Assembly, Power & Control P.C. Board

●: For multi-voltage model only ■: For single voltage model only

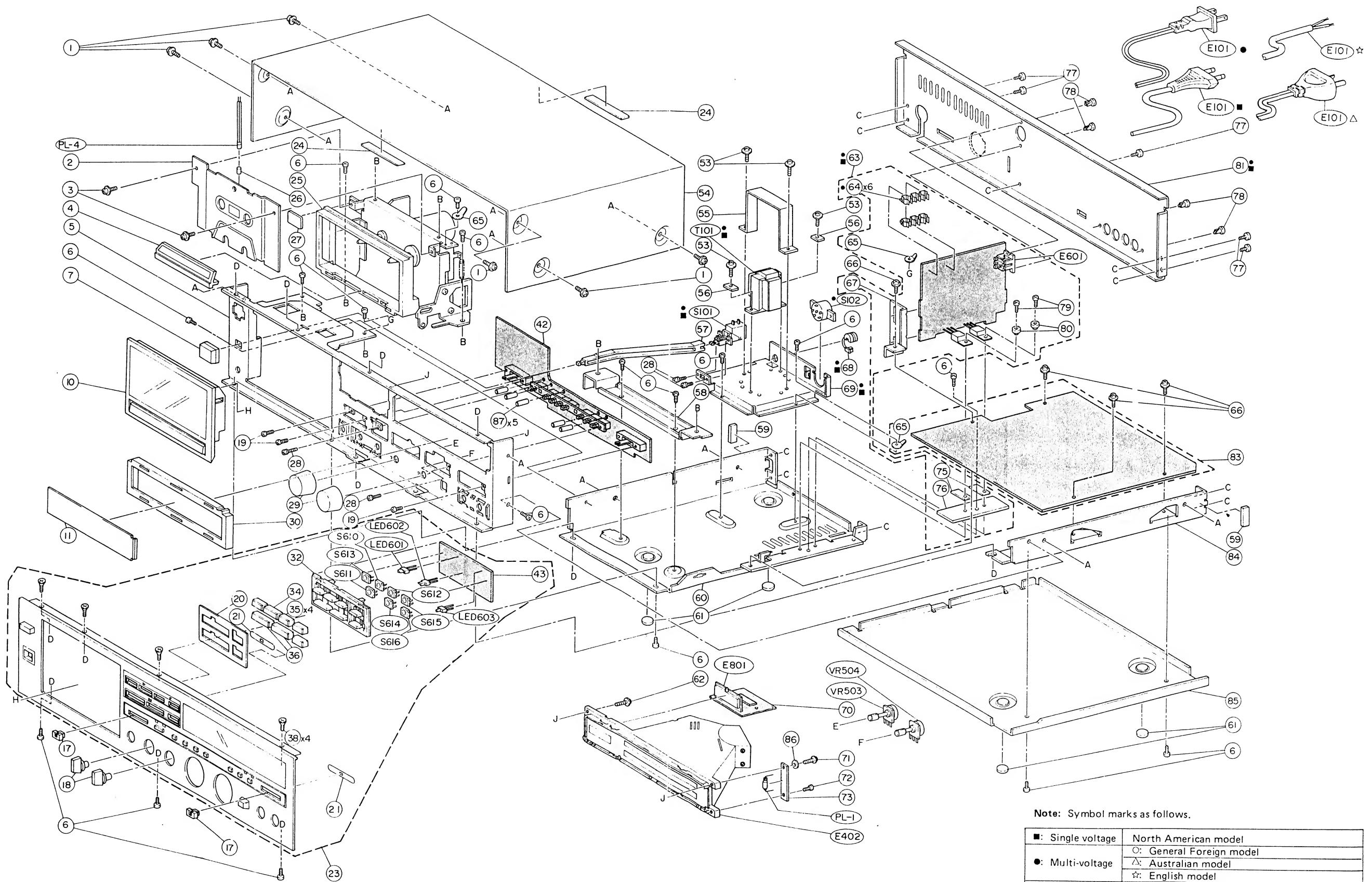
NOTE: The parts without part numbers are not supplied.

Symbol No.	Part No.	Description
64	● 9T45548F01	Holder, Fuse
65	29A41814G01	Lug
66	3C42723U01	Screw, Cup
67	7B47370F01	Support, P.C. Board
68	● 43B41625J02	Support, Cord
	■ 43B41625J01	Support, Cord
69	●	Bracket, Transformer
	■	Bracket, Transformer
70	65T47743F01	Counter, FL
71	3S44205G08	Screw, Tap Tite (M3 x 12)
72	3S40018G01	Screw, Tap Tite (M3 x 6)
73	84D47736F02	Panel, Lamp
75	14A40472G02	Insulator, Transistor
76		Bracket, Heat Sink
77	3S44205G40	Screw, Tap Tite (M3 x 4)
78	5B41635J02	Rivet, Push
79	3A43146G01	Screw, Machine (M2 x 6)
80	43A43182P01	Spacer, Transistor
81	● 15C45441F03	Cover, Rear
	■ 15C45441F04	Cover, Rear
82	84A45465F01	Panel, Mute
83	1V51300F63	Assembly, Master Board
84		Chassis, Side
85	4S40075G16	Cover, Bottom
86	43A51441F01	Washer S.T.W.
87		Spacer LED

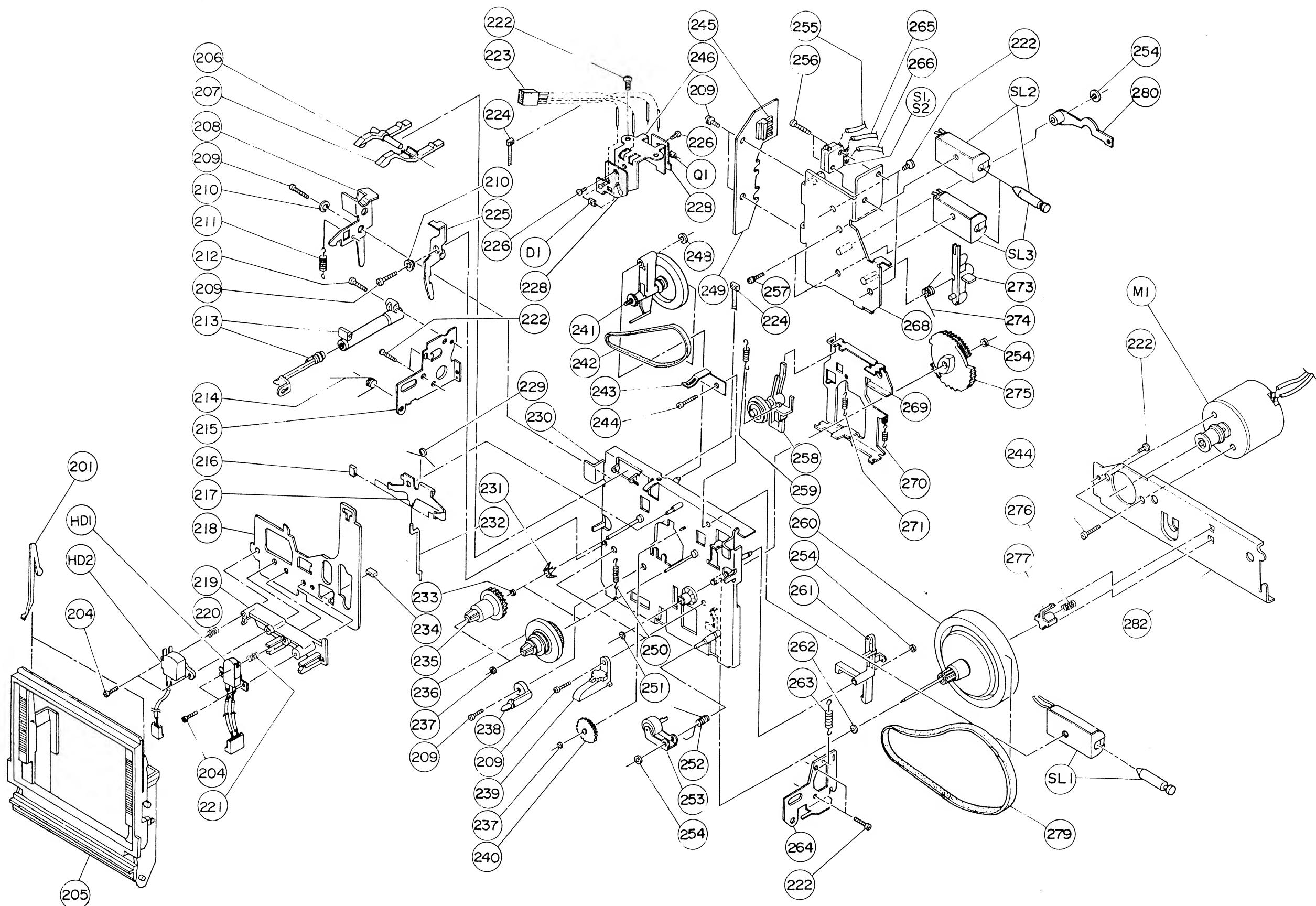
## Exploded View (Cabinet)



## Exploded View (Cabinet)



## Exploded View (Cassette Deck)

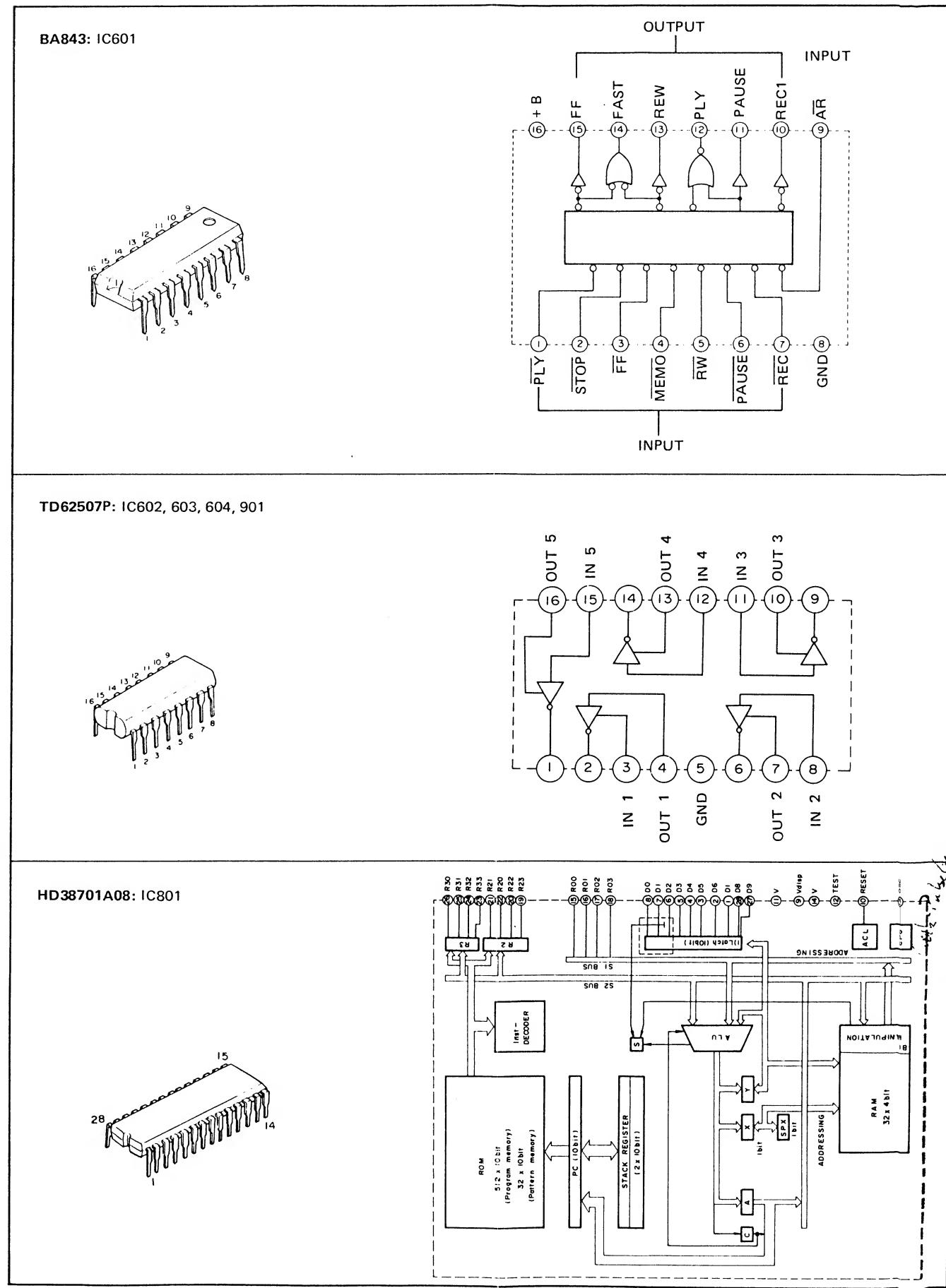
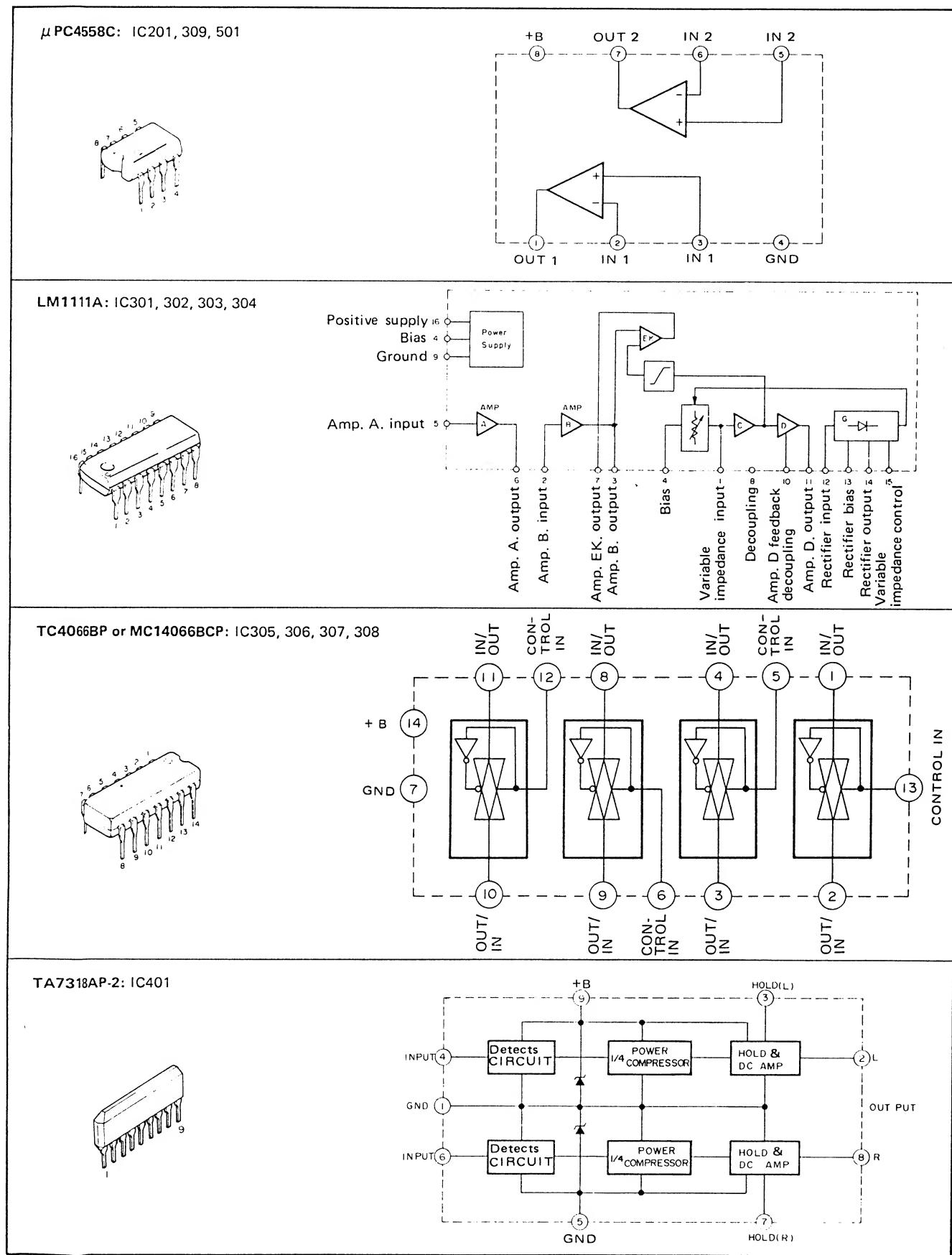


## Cassette Deck Assembly Parts List

Symbol No.	Index	Part No.	Description	Symbol No.	Index	Part No.	Description
201	3-A	FK553-12	Spring, Hold	240	2-D	FN154-13	Gear, Idler
204	4-A	FG137-15	Screw, F-Lock (M2 x 13)	241	2-D	FP470-11	Assembly, Clutch
205	5-A	FR369-11	Frame, Door	242	3-D	FP463-11	Belt, Sub
206	1-B	FR357-14	Arm, Record	243	3-D	FK551-13	Spring, Cassette
207	1-B	FR356-13	Arm, Switch	244	3-D	FG114-15	Screw, Washer (M2.6 x 4.5)
208	1-B	FC11H-12	Arm, Lock Eject	245	1-E	KY130-11	Connector (8P)
209	2-B	KG194-12	Screw, Tap Tite (M3 x 6)	246	1-E	FC15H-11	Bracket, Sensor
210	2-B	FM296-11	Spacer	248	2-E	FJ123-19	Washer, Lock ( $\phi$ 3.5)
211	2-B	FK573-11	Spring, Arm Lock	249	2-E	FP11N-11	Panel, Connector
212	2-B	UG11D-11	Screw, Tap Tite (M2 x 12)	250	4-D	FK578-12	Spring, Head Base Hold
213	2-B	FP472-11	Assembly, Dumper	251	4-D	FJ141-12	Washer, Oil Shield
214	3-B	FK568-11	Spring, Door	252	5-D	FK569-12	Spring, Pinch Roller
215	3-B	FR349-13	Bracket, Dumper	253	5-D	F014-053	Assembly, Pinch Roller
216	3-B	FF11C-11	Rubber, Brake	254	5-D	FJ123-15	Washer, Lock ( $\phi$ 2.6)
217	3-B	FC15G-11	Lever, Brake	255	1-E		Tube, Vinyl (Blue)
218	4-B		Base, Head	256	1-E	FG143-26	Screw, Machine (M2.6 x 15)
219	4-B	FM283-13	Spacer, Head	257	2-E	FG143-17	Screw, Machine (M2.6 x 3)
220	4-B	FK572-12	Spring, Azimuth	258	3-E	FP469-11	Assembly, Idler
221	5-B	FK572-11	Spring, Azimuth	259	3-E	FK575-11	Spring, Play Idler
222	1-D	KG194-46	Screw, Tap Tite (M3 x 4)	260	3-E	49B50559F01	Assembly, Flywheel
223	1-D	WH16A-00	Connector, Wire	261	4-E	FR359-12	Arm, Play Solenoid
224	1-D	FH126-11	Band, Connector	262	4-E	FJ111-14	Polyester Slider (Flywheel) ( $\phi$ 2.5 x 0.5)
225	2-C	FR352-11	Lever, Safety	263	4-E	FK576-12	Spring, Play Solenoid Arm
226	2-C	FG137-11	Screw, F-Lock	264	5-E	FR350-12	Bracket, Door
228	2-D	FP11E-11	Panel, Sensor	265	1-F		Tube, Vinyl (Brn)
229	3-D	FK12A-11	Spring, Brake	266	1-F		Tube, Vinyl (Red)
230	3-D		Assembly, Chassis	268	2-F		Bracket, Solenoid
231	3-C	FK579-11	Spring, Back Tension	269	3-F	FR346-11	Base, Assist
232	3-C	FK11Y-11	Rod, Brake	270	3-F		Spring, Assist
233	4-C	FJ111-19	Polyester Slider (Supply Reel) ( $\phi$ 2 x 0.13)	271	3-F	FK577-12	Spring, Head Base
234	4-C	FP464-11	Pad, Cushion	273	2-F	FR355-13	Arm, FF Solenoid
235	4-C	FR12P-11	Assembly, Supply Reel	274	2-F	FK570-12	Spring, Solenoid Bracket
236	4-C	FR12N-11	Assembly, Take-up Reel	275	3-F	FN153-11	Gear, Play
237	5-C	FJ123-14	Washer, Lock ( $\phi$ 1.7)	276	3-F	FK11F-16	Spring, Thrust
238	5-C	FR358-12	Guide, Reference	277	4-F	FM281-12	Spacer, Flywheel
239	5-C	FR360-12	Guide, Cassette	279	5-F	FP462-11	Belt, Main
				280	1-G	FD12W-11	Arm, Brake
				282	4-G	FR347-12	Bracket, Motor

NOTE: The parts without parts numbers are not supplied.

## Semi-Conductor Lead Identifications



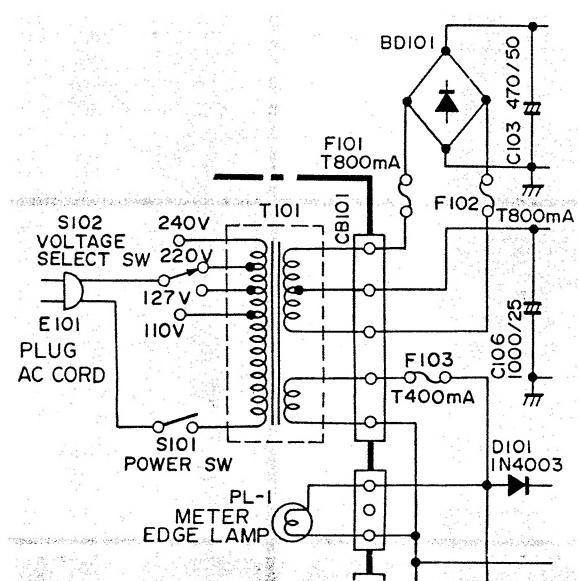
IC	IC 601	IC 602	IC 603
Transistor	Q101, Q601, Q102, Q103, Q602	Q606	Q603
Diode	LED601, LED602, LED603, BD101, D601, ZD101, D101, D602, D603, D604, LED604, LED6C5	D606, D607, D664	D606, D607, D664

Notes:

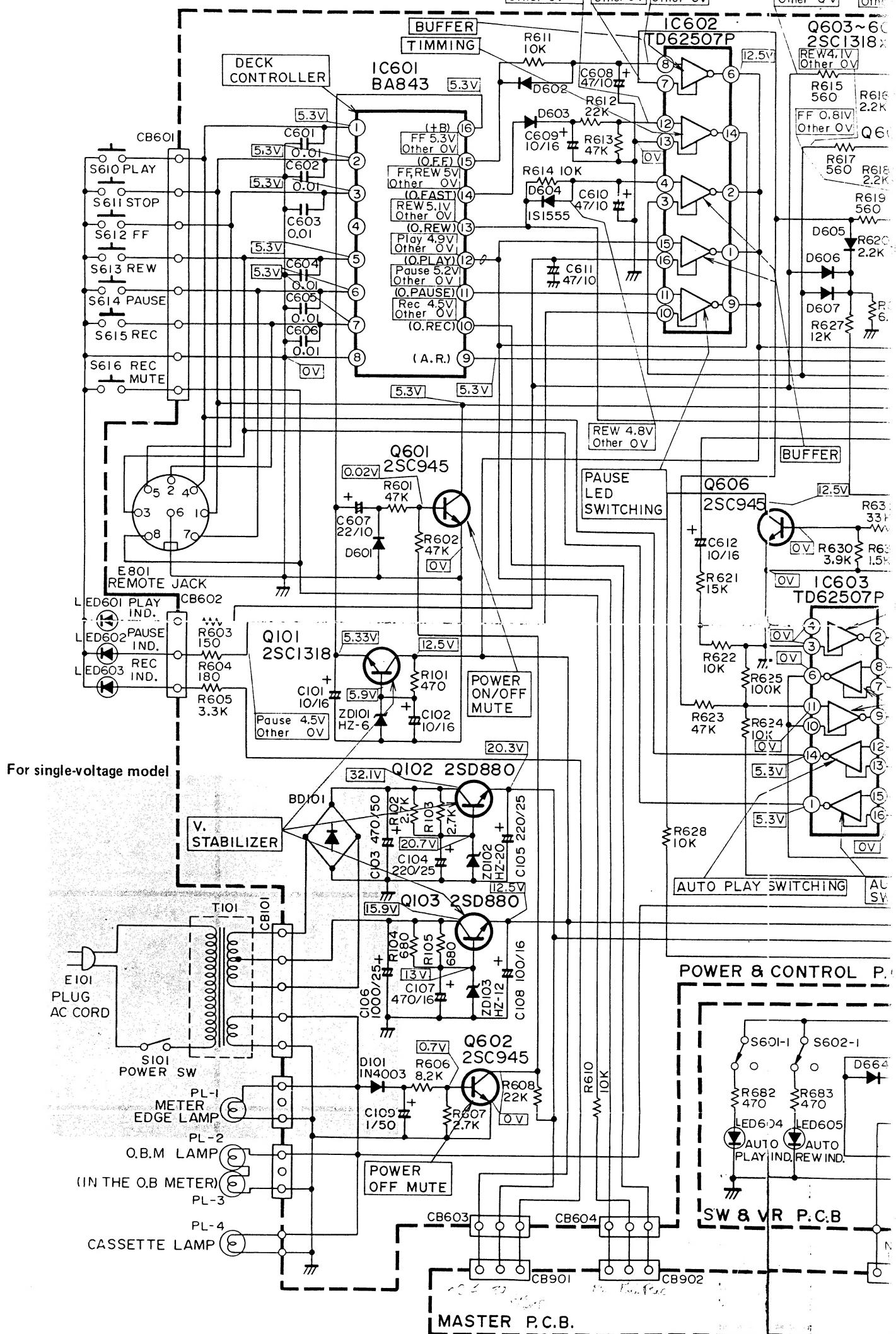
- (1) All resistance values are in ohm, K = 1,000, M = 1,000,000.
- (2) All resistance values are in microfarads. P = 1/1,000,000.
- (3) Unspecified voltages are measured in stop mode.
- (4) Switch position
  - S601 (Auto Play): On position
  - S602 (Auto Rewind): On position
  - S603 (Dolby NR Select): Dolby-C position
  - S604 (Execution): On position
  - S605 (Clear): (Intact)
  - S606 (Tape/Time): Tape position
  - S607 (Call): (Intact)
  - S608 (Write): On position
- (5) Semiconductors

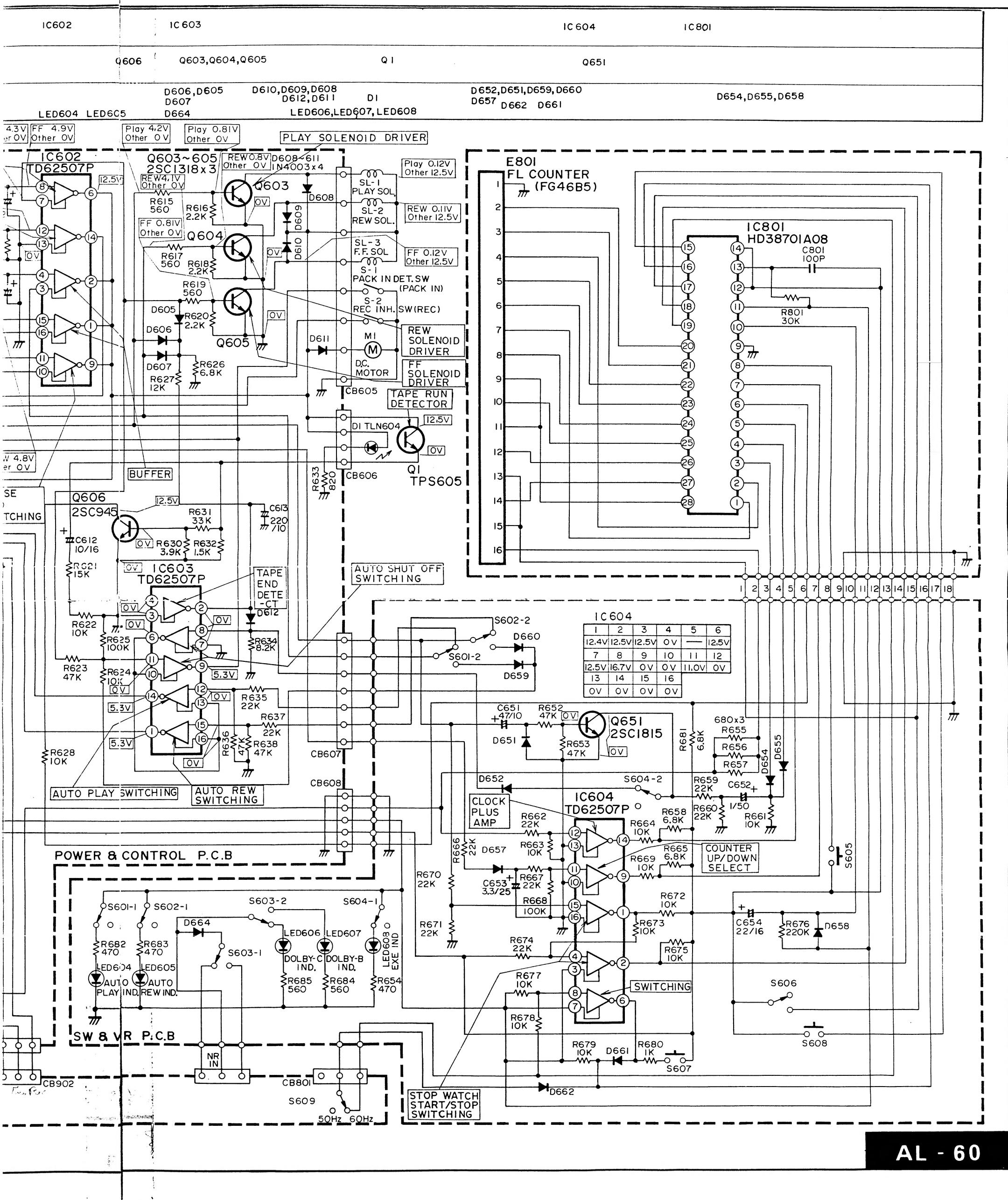
IC601	BA843
IC602 to 604	TD62507P
IC801	HD38701A08
Q1	TPS605
Q101, 603 to 605	2SC509/2SC1318
Q102, 103	2SD880/2SD235
Q601, 602, 606, 651	2SC1815, 2SC1684
D1	TLN604
D101, 608 to 611	1N4003/10E2
D601 to 607, 612 651, 652, 654, 655 657 to 662, 664	1S1555/MA165
BD101	WL02

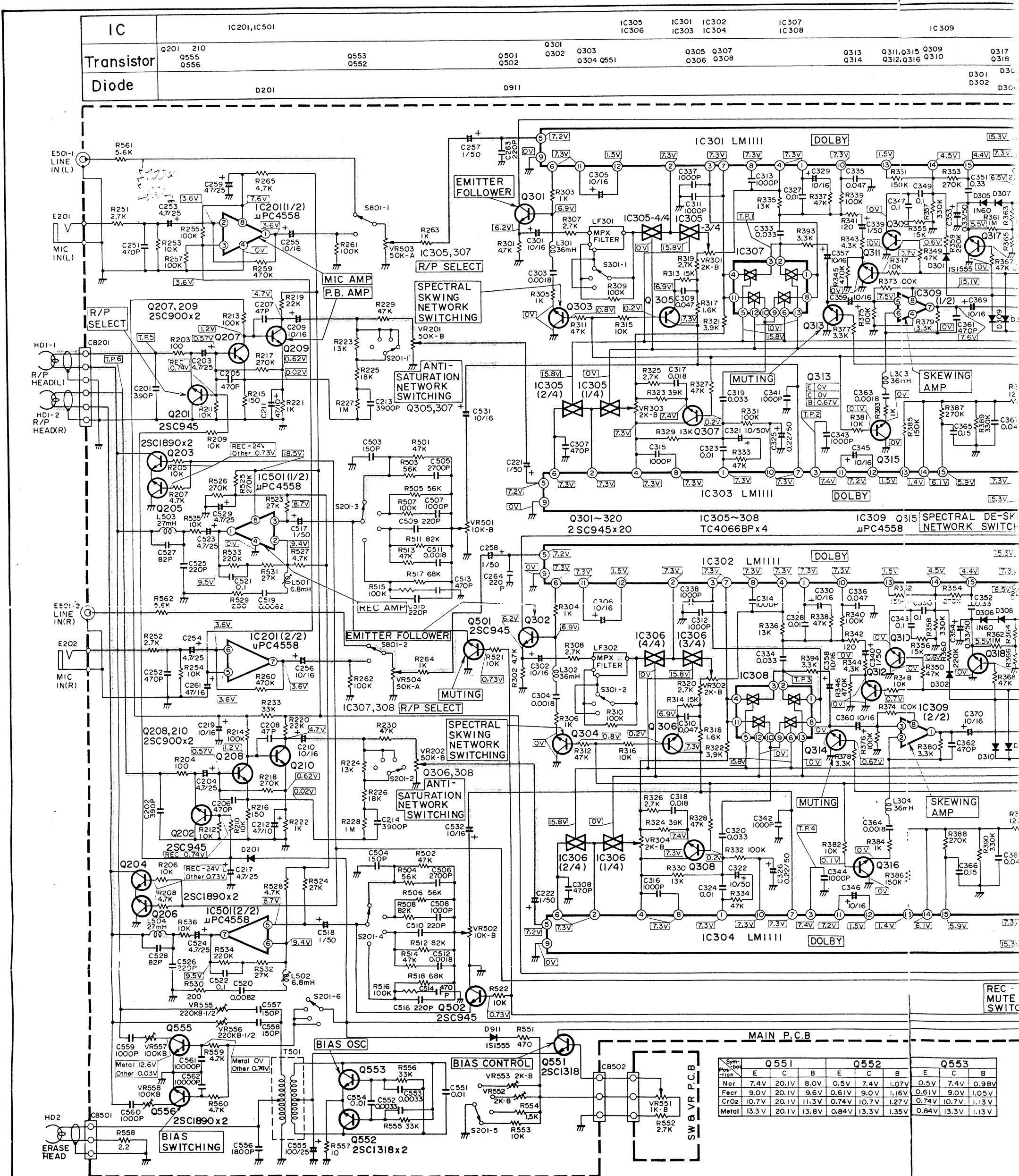
(b) For pin connection of IC, refer to "Semiconductors Lead Identifications".

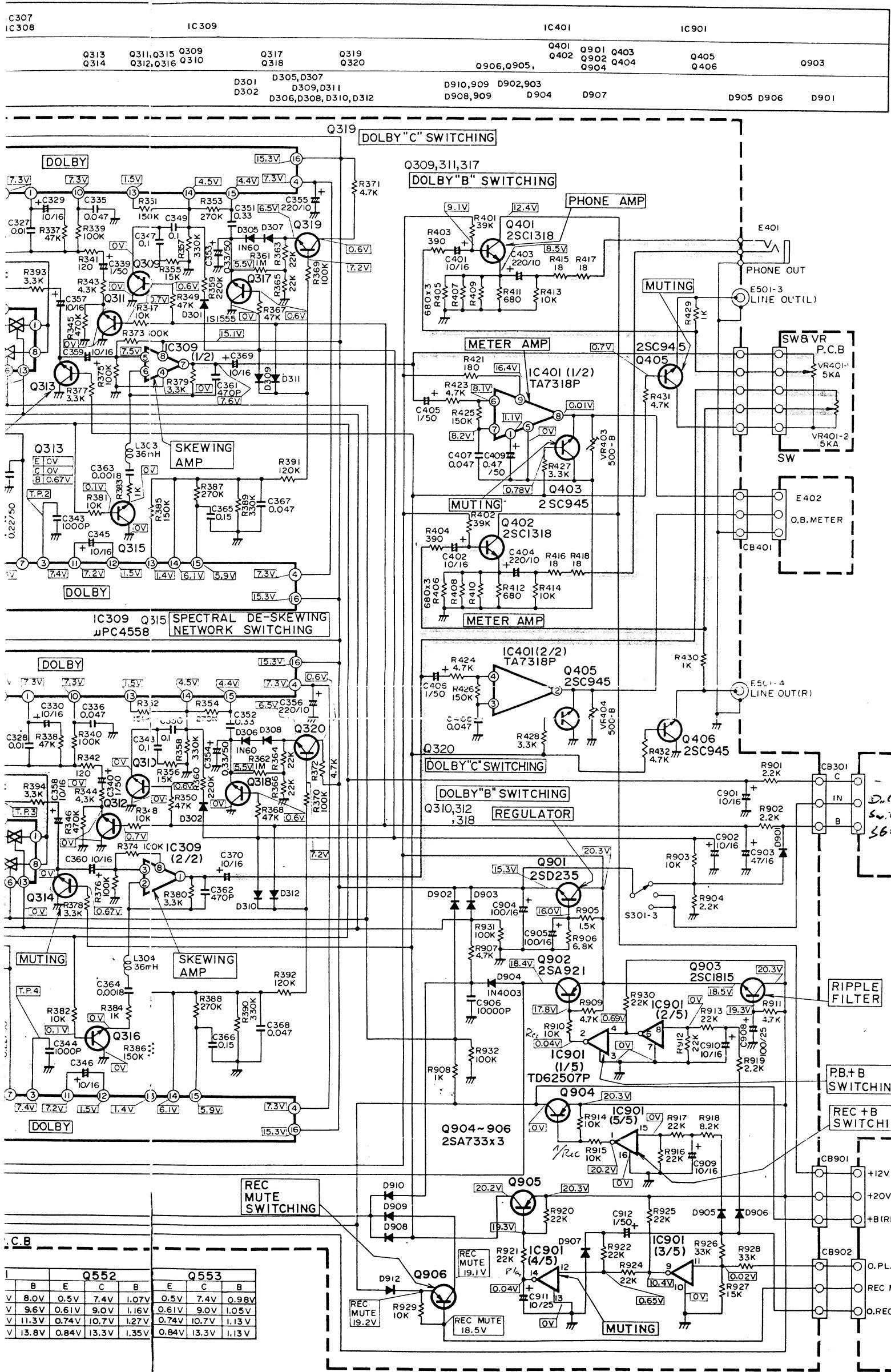


For multi-voltage model









## Notes:

- (1) All resistance values are in ohms.  $K = 1,000$ ,  
 $M = 1,000,000$ .
- (2) All capacitance values are in microfarads.  
 $P = 1/1,000,000$ .
- (3) Unspecified voltages are measured in stop mode.
- (4) Switch position
  - S201 (Tape Select): Metal position
  - S301 (Dolby NR/MPX Filter): (Both) Off position
  - S801 (Input Select): Line position
- (5) Semiconductors

IC201, 309, 501	μPC4558
IC301 to 304	LM1111A
IC305, 306, 307, 308	TC4066BP/ MC14066BCP
IC401	TA7318AP
IC901	TD62507P
Q201, 202, 301 to 320, Q403, to 406, 501, 502, Q903	2SC945/2SC1815
Q203 to 206, 555, 556	2SC1890/2SC1980
Q207 to 210	2SC900/2SC732
Q401, 402, 551 to 553	2SC1318/2SC509
Q901	2SD235/2SD88U
Q904 to 906	2SA733
Q902	2SA921
D904	1N4003/10E2
D201, 301, 302, 307 to 312 D901 to 903, 905 to 912	MA150
D305, 306	1N60

For pin connection of IC's, refer to "Semiconductors Lead Identifications".